

NORTH CAROLINA'S COASTAL HABITAT PROTECTION PLAN
2008 - 2009
ANNUAL REPORT

TO THE
JOINT LEGISLATIVE COMMISSION ON SEAFOOD AND AQUACULTURE
AND
ENVIRONMENTAL REVIEW COMMISSION
OF THE
NORTH CAROLINA GENERAL ASSEMBLY
FROM
NORTH CAROLINA MARINE FISHERIES COMMISSION,
NORTH CAROLINA COASTAL RESOURCES COMMISSION,
NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION, AND
NORTH CAROLINA WILDLIFE RESOURCES COMMISSION
AND
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

September 2009

Highlights

September 2008 – August 2009 Accomplishments

Goal 1: Improve effectiveness of existing rules and programs protecting coastal fish habitats

DCM/CRC

- DCM was successful in securing funding for the position of Compliance Education Coordinator through the express permitting program. However, the budget difficulties caused the funding to be rescinded. DCM will pursue this funding again once the state budget situation stabilizes.
- DCM was successful in securing funding for a position which coordinated both the Clean Marina Program and the Clean Vessel Act programs through the express permitting program. However, the budget difficulties caused the funding to be rescinded. DCM will pursue this funding again once the state budget situation stabilizes. When the position is established, the agency will be able to enhance the programs with more of a focus on the CHPP.
- The Cooperative Institute for Coastal and Estuarine Environmental Technology has awarded a \$717,000 grant to the N.C. National Estuarine Research Reserve (NERR) and the NOAA Center for Coastal Fisheries and Habitat Research to examine different methods of erosion prevention in sheltered coastlines. The project, “Sustainable Estuarine Shoreline Stabilization: Research, Education, and Public Policy in North Carolina,” is focused on understanding the environmental and economic tradeoffs of alternative erosion control measures. The project focuses on three regions along North Carolina’s coast (Northern, Central and Southern), where researchers will assess the ecosystem impacts of shoreline stabilization. The project will also design and construct a demonstration project based on alternative shoreline stabilization techniques at the Rachel Carson component of the NC NERR. During the two-year project, they will develop an approach to evaluate ecological and socioeconomic costs and benefits of shoreline erosion and protection alternatives. The NC NERR will develop outreach and educational products to disseminate the knowledge and tools developed by the research team.
- DCM staff reviewed CAMA Land Use Plans for Craven County, Dare County, Caswell Beach, Holden Beach, Ocean Isle Beach and Sunset Beach.

DMF/MFC

- Marine Patrol Officers have been trained by CAMA enforcement officers. They are to report when they see suspicious activities, such as nighttime or weekend dredging, shoreline disturbance without turbidity curtains installed, sediment plumes and fish kills. DMF has a contract to fly monthly with CAMA to check for violations.
- Joint MFC-WRC Coastal Recreation Fishing License (CRFL) Committee approved 2 positions for 5 yrs. The filling of these positions was delayed by budget processes, but is still proceeding.
- MFC approved the revised definition of SAV habitat in 2009 to more closely align the definition with the definition in the CHPP. The CRC referenced this new definition in its revised dock rules.
- DMF conducted data analysis as part of the Strategic Habitat Area Region 1 evaluation and found that habitat alteration ratings were a good indicator for fish abundance and diversity.
- DMF Library Committee drafted SOP for maintaining database of DMF gray literature; Fishery Management Plans, federal aid, CRFL, ASMFC compliance, License, Habitat and Resource Enhancement reports.

DWQ/EMC

- DWQ regional offices have prioritized inspections of estuarine sites associated with SA waters.

- An issue regarding Hybrid Striped Bass pond discharge in Beaufort County was raised at MFC's Habitat & Water Quality Committee. DWQ determined the discharges to contain elevated levels of chlorophyll a and BOD. DWQ has implemented a Special Order by Consent (SOC) for the five aquaculture farms in the Aurora area. These five Hybrid Striped Bass operations have submitted individual Farm Management Plans. These plans include operational information that specifies operation procedures and BMP's which minimize water quality impacts. DWQ requested additional information after the initial plans were filed. The first 6 month reports were submitted by the five farms on August 1, 2009.
- DWQ is participating with APNEP's Water Resources Monitoring Team which has started to draft indicator metric proposals.

WRC

- WRC became a full partner in the CHPP process with two commissioners serving on the CHPP Steering Committee.
- Participated in agency meetings to work with DMF and DCM on terminology within rules.
- Assisted with comments involving indicator monitoring and SAV programs
- WRC frequently shared data with DMF, DWQ, DCM, and the Natural Heritage program to update files and address wildlife concerns
- Habitat values were demonstrated at the State Fair, the three regional Wildlife Education Centers, Pechman Fishing Center, Outreach programs, festival booths, and WRC's mobile aquarium.
- WRC continues to maintain numerous fishing access and identification booklets as well as habitat enhancement brochures and articles in the WINC magazine.
- Coastal Technical Guidance staff attends interagency permit review meetings. Meetings have been canceled due to budget constraints since early 2009.

DENR

Albemarle Pamlico National Estuary Program

- APNEP's Living Aquatic Resources and Water Resources Monitoring Teams, whose membership include state and federal agency plus university representatives, began work on developing monitoring plans for freshwater, estuarine, and marine habitat indicators.

Division of Forest Resources

- The NCDFR facilitated the formation of a silviculture and wetlands regulatory guidance group with the US Army Corps of Engineers (Wilmington District), the US Environmental Protection Agency, the NC Division of Water Quality, and North Carolina State University. The goal of this group is to give guidance to the forestry community that provides interagency consensus on forest management in wetlands. Other forestry stakeholders will be involved in aspects of this guidance process.

Department of Environmental Health – Shellfish Sanitation

- DEH – Shellfish Sanitation has produced an SOP document outlining the new shoreline survey methodology program procedures. The new shoreline survey methodology has been expanded coast wide to all growing areas with 95% of the survey now complete. Problems/violations/areas of concern are reported to the appropriate agency with jurisdiction regarding the violation. The central coastal area surveys using the new methodology are complete and 7 growing areas remain to be completed using the new methodology.
- DEH-SS has convened a shoreline survey "Task Force" which has been formed to review the DEH-SS Shoreline Survey SOP and design an inspection program to enhance habitat protection. Its purpose is to evaluate current inspection regimes within DENR in order to recommend ways

to share inspection findings among agencies and to reduce duplicative inspections carried out by different agencies. The taskforce held meetings in December 2008 and March 2009. Travel restrictions delayed another meeting and communication has been via email. Membership on the task forces is comprised of staff from DWQ, DCM, DEH, DMF and OCCA.

- The Interagency Task Force has produced a draft outline for the report for the new inspection program to meet the DEH CHPP recommendation. The draft outline was presented to CHPP Steering Committee at its August meeting and no major changes were suggested.

Division of Soil and Water Conservation

- The Division of Soil and Water Conservation has convened a workgroup to identify ways the Agriculture Cost Share Program can assist Hybrid Striped Bass (HSB) farmers to implement effective BMPs to address discharge concerns.

Goal 2: Identify, designate and protect strategic habitat areas

DCM/CRC

- The NC Coastal Reserve conducted a survey of members of the NC Interagency SAV Work Group to determine SAV outreach needs. The survey was used to develop a matrix of priorities for outreach products and audiences, as well as a plan to address those needs. The plan was incorporated as an outreach task of an SAV monitoring proposal submitted by members of the SAV Work Group for 2009 NC CRFL Marine Resources funding. Although the outreach task was not funded for 2009, it provides a basis for future proposals.
- A field survey of SAV at the Currituck Banks NC Coastal Reserve component has been postponed until spring of 2010, pending lifting of State travel and staffing restrictions. The field survey will be conducted following protocols used for surveys that have been conducted for the Rachel Carson and Masonboro Island Coastal Reserve components.

DMF/MFC

- The aerial photographs from the SAV Interagency Workgroup have been partially photo-interpreted. A position vacancy in winter 2008 stopped the progress of this effort. Currently the position is frozen due to the state's budget situation.
- DMF's Resource Enhancement section mapped 26,336 acres of shallow water estuarine shell bottom this past year in Brunswick, Hyde and Carteret Counties.
- A CRFL grant was awarded to APNEP/ECU/NCSSU/NOAA to test monitoring techniques and collect associated environmental data for submerged aquatic vegetation habitat.
- A DMF intern in 2009 conducted a preliminary study in New Hanover Co. looking at the effects of floating docks, lifts and boat stops on benthic habitat condition. The draft report has been completed. More research is needed to support any management recommendations.
- The Strategic Habitat Area evaluation was completed for Region 1, the Albemarle Sound Area. The nominations for the areas were recognized by the CHPP Steering Committee and the MFC and will be incorporated into DENR's Conservation Planning Tool.
- A CMAST fellow was hired in 2009. The purpose of the Fellowship is to compile GIS data in order to advance the SHA analysis for remaining regions.
- Maps are now available from the DMF of the recently designated Anadromous Fish Spawning Areas (AFSA). These maps, and their associated data, have been provided to EEP for its use and also to DENR for use with the Conservation Planning Tool.

DWQ/EMC

- The DWQ Pamlico and Neuse Rapid Response Teams (RRTs) continue to participate in a special study that was initiated in 2005 involving shoreline mapping of the Western Pamlico Sound and associated tributaries. RRT SAV surveys will continue in 2009, concentrating efforts on the Pungo River tributaries, Jones Bay, Rose Bay, Porpoise Bay and Swanquarter Bay. Areas that have been found to have no SAV present in earlier years may be revisited.

WRC

- WRC continues to be an active participant in the SAV quarterly interagency meetings. They have provided in-kind staff time for ground truth points, and provided a portion of the funding for this effort.
- WRC commented on numerous waterfront development projects encouraging developers to minimize impacts to SAV and recommending alternative designs based on the latest science and information.
- WRC biologists worked closely with other agencies and universities in the designation of Strategic Habitat Areas in the Albemarle Sound Region.

DENR

Albemarle Pamlico National Estuary Program

- APNEP, in partnership with NOAA, DMF and others, has completed the acquisition of aerial photographs covering all coastal waters of North Carolina and Southeastern Virginia (Back Bay) where potential SAV habitat could exist. The digital images being used by DMF photo interpreters to create a baseline map of SAV presence as an initial step toward SAV habitat monitoring. Unfortunately, the lead DMF photo interpreter responsible for map production resigned in November 2008 and DMF has been unable to hire a replacement. APNEP is currently seeking the assistance of alternative organizations to assist in map production.
- The APNEP is working with the Environmental Defense Fund to develop a comprehensive assessment methodology for wetland functionality in the Chowan Estuary of Western Albemarle Sound, as the basis for setting goals for wetland extent and condition, developing programs to achieve those goals, and tracking progress. The work will be used to prioritize short-term actions, and as an integral part of the long-term implementation plans for state and federal resource management in the region.

Ecosystem Enhancement Program

- EEP has incorporated DMF's proposed Strategic Habitat Areas data into its Targeted Local Watershed (TLW) designation for the 2009 Chowan River Basin Restoration Priority Plan (RBRP) update. The inclusion of this data in the RBRP and future ones is intended to elevate the importance of fish habitats in the selection of TLWs in which EEP and others will implement their restoration projects.

Goal 3: Enhance habitat and protect it from physical impacts

DCM/CRC

- The proposed rule changes to the Coastal Wetlands rules include a list of standards under which limited alterations, or alterations by resource agencies or academic institutions, shall be exempt from permit requirements. A second public hearing was heard at the June 2009 meeting with an anticipated effective date of November 1, 2009.
- DENR conducted a second set of public meetings regarding the Beach and Inlet Management Plans (BIMP) in March to update the public on the progress of the state's Beach and Inlet

Management Plan. Regional presentations can be found here. A summary of public comments received is available from the DCM web site here.

- DENR previously held five public meetings regarding BIMP development in December 2008. These meetings included a preview of the draft BIMP management regions, shown below, along with a presentation on accomplishments to date. DENR is currently reviewing a final draft of the document and it is expected to be released in August 2009.
- In an effort to determine the impacts associated with the construction of marsh sills, the Division of Coastal Management will be partnering with UNC Institute for Marine Science and NOAA Center for Coastal Fisheries and Habitat Research to survey of approximately 30 sills that have been constructed along the coast. The survey will include sampling vegetation transects looking at stem density or % cover; surveying elevation profiles; analyze sediments for organic content and particle size; and sampling nekton and macrofauna. The survey will be incorporated as part of the CICEET sills project.
- DCM has generated a methodology for delineating the shoreline and structures for North Carolina. This methodology has been used, through a contract with ECU, to delineate the estuarine shoreline of Hyde and Beaufort counties. An additional contract has been established with ECU to delineate the shoreline for Dare, Pasquotank, Perquimans and Tyrrell County, with additional monies anticipated to be available in FY10 for 7 other counties within the Albemarle/Pamlico Sound region. In addition, DCM staff are delineating two counties (Pamlico and Craven) in an effort to bring the total shoreline project to 15 completed counties by December 2010.
- The DCM is working with DENR to co-host a sea level rise forum in January 2010 intended to display the best available science on current and project sea level rise for NC to help form the scientific basis for policy and management decisions. All scientists and researchers investigating sea level rise in the state will be invited to present their work. The target audience will include legislators, state and local policy makers and resource managers, elected officials, emergency managers, planners, infrastructure interests, conservations, private sector and other interested parties. The forum will focus on how much relative sea level rise should NC prepare for by 2100.

DMF/MFC

- Approximately 18,000 tons of marl were planned for deployment this past year to be divided among new sites and existing sites. Due to budget constraints, the legislature reduced the original funding by half. This eliminated the approved new positions, but retained approximately \$1million for material purchases.
- An estimated 23,162 bushels of recycled oyster shell was collected. 70% of these were collected from restaurants, 36% were collected from public collection sites and 5% were collected from special events. 135,259 bushels of oyster shell were purchased along with 44,333 bushels of marl. A total of approximately 202,700 bushels of cultch have been, or will be, planted on cultch sites throughout the coast (170,000 done right now but expect to finish before end of 2009).
- All 9 oyster sanctuaries were monitored this past year. Parameters measured included size and structure of oyster beds, survival rates, growth rates, water quality conditions and colonization on cultch. A large amount of mortality was noted at the Ocracoke site although no cause was determined.
- A CRFL grant was awarded to look at fish utilization of oyster sanctuaries and the economic benefits associated with that utilization.
- A Fishery Resource Grant project continued this past year looking at the hydrodynamic circulation patterns of the Pamlico Sound and its effects on larval transport of oysters.
- The planning for the state's oyster hatchery at UNC-W is continuing.
- As part of the ongoing River Herring research, 9 continuous monitoring devices were purchased and deployed in the Chowan, Roanoke, Perquimans, Scuppernong, Pasquotank and Alligator

Rivers. These devices collect data every 2 hours, including water temperature, dissolved oxygen, salinity, pH and conductivity.

- In an effort to locate obstructions and impedances to river herring passage, surveys were conducted on the primary culvert, the lowest downstream culvert, in the Chowan and Meherrin River tributaries. Information collected included; culvert type, material, dimensions, water depth, distance between water level and top/bottom of culvert, water level and water body width.
- MFC approved a compensatory mitigation policy that shifts emphasis from simply no net loss (in-kind mitigation) to restoration of ecological functions within a watershed, and may incorporate restoration of other estuarine habitats that perform similar but effective functions.

DWQ/EMC

- DWQ established a compensatory mitigation database in late 2008 that will be maintained going forward.
- DWQ worked with DOT on a SAV and oyster habitat restoration and mitigation project in the Currituck Sound. Restoration work has been completed and monitoring continues to assess the success of the project.

WRC

- WRC is an active member of the Program Assessment and Consistency Group (PACG) working closely with EEP and NCDOT on an appropriate crediting system for DOT mitigation projects.
- WRC submitted proposals to the Natural Heritage Trust Fund that benefit fisheries habitat.
- WRC works with local coastal governments and DENR in identifying navigation and stream restoration projects which are of particular importance to fish and fish habitats.
- WRC biologists work closely with APNEP and DMF to provide data and information regarding River Herring spawning areas and any obstructions found which may impede passage.
- WRC has participated in DCM's shoreline stabilization workshops and provide comments during permit reviews encouraging non-vertical structures and living shorelines.
- WRC has biologists that have attended several meetings and have provided input on benefits to fisheries management with dam removals.

DENR

Albemarle Pamlico National Estuary Program

- APNEP has received a grant from the US EPA to begin a pilot program addressing climate change issues in the Albemarle Pamlico region. APNEP is working with Duke University's Nicholas Institute and others on this Climate Ready Estuary project.
- APNEP is working with the Nature Conservancy and the Alligator River National Wildlife Refuge to develop techniques to provide for ecological adaptation to sea level rise for wetlands and riparian forests.
- APNEP co-facilitated seven listening sessions with support from the AP3C partner organizations with the goal of learning how the general public perceives the combined threat of sea level rise and population growth. These listening sessions provided the public with some basic information about sea level and population change and will solicit public opinion about how they view the changes and threats, what impacts they are already experiencing, and what types of solutions might be pursued. Information from these sessions will help to inform conservation and community planning in light of the significant threat from sea level rise to private property and the natural landscape. The final report is available on the APNEP website at:
<http://www.apnep.org/pages/PublicListeningSessionsReport.pdf>

Division of Forest Resources

- The DOT and DFR have agreed to easement compensation for loss of nursery tree production and a NCDOT engineering consultant is completing engineering and design plans for the stream and riparian corridor restoration. Permitting of the project is pending. EEP was unable to complete negotiations with adjacent landowners. Therefore, the current stream restoration project is expected to be contained on DFR nursery property.
- There is a channelized stream runs through the Division's 700+ acre Claridge Nursery, located just west of the City of Goldsboro. DFR established a research partnership with NCSU BAE Department to conduct baseline (pre-construction) water quality and quantity measurements. Three sampling stations are proposed: one upstream of the stream restoration, one mid-stream, and one downstream. Weirs, water flow, and water sampler installations were initiated in June of 2009 and will be completed in September of 2009. The NCDOT is supporting this monitoring project with a \$15,000 grant being processed through ITRE. Additional federal grant money is also being solicited to support and sustain project monitoring.

Division of Soil and Water Conservation

- The Division has placed a strong emphasis on the Community Conservation Assistance Program (CCAP) because it is the only retrofit program that can begin to help communities reverse stormwater pollution.
- The Division is working with local Districts to incorporate the Strategic Habitat Areas into local ranking systems for the CCAP and the Agriculture Cost Share Program (ACSP), and the Division is working to incorporate the SHA's in the establishment of priority areas for the Conservation Reserve Enhancement Program (CREP).

Ecosystem Enhancement Program

- EEP worked with multiple state and federal agencies to develop guidance that links project function with mitigation credit.
- EEP partnered with ECU and NC Environmental Defense to develop a non-traditional approach to mitigation in the White Oak basin. This Local Watershed Plan (LWP) is outlined [here](#) with links to the chapters of the project titled *An Approach to Coordinate Compensatory Mitigation Requirements to Meet Goals of the Coastal Habitat Protection Plan*. The final draft of Chapter 3 is currently under review.
- EEP investigated the mitigation potential of and presented findings of a non-traditional mitigation project in Manteo to its Program Assessment and Consistency Group Technical Committee (PACG-TC), the primary oversight committee of EEP. The project was proposed by the NC Coastal Federation and consisted of an innovative saltmarsh basin to treat 41 acres of stormwater runoff. The project was ultimately funded and implemented by NCDOT hydraulics unit as part of their stimulus funding award, but the effort advanced the understanding of EEP's PACG-TC, potentially paving the way for future non-traditional coastal mitigation projects.
- EEP has negotiated an option agreement with the landowner for the southern parcel of the Little River restoration project in Wayne County. This project is adjacent to the DFR-NCDOT project at Claridge Nursery.
- EEP actively participated in the development of SAV restoration goals and guidance as a member of the NC SAV Mapping Partnership and its Restoration Subcommittee. EEP will continue to contribute to the partnership and to educate the PACG-TC regarding the potential of SAV restoration for mitigation.
- EEP promoted the study of dam removal projects for mitigation by presenting a program titled *Incorporating Dam Removal Projects into EEP Local Watershed Plans* at the 2008 Stream Restoration in the Southeast conference in Asheville. The second of two case studies presented used the June 2008 dam removal guidance produced by the interagency team led by the Raleigh

office of the US Army Corp of Engineers to demonstrate potential mitigation credit produced by removing Cape Fear River Locks and Dams 1 & 2.

Goal 4: Enhance and protect water quality

DCM/CRC

- The NC NERR Coastal Training Program conducted the following workshops:
 - May 7, Wilmington: Coastal Growth Strategies (Leadership Training for Elected Officials) – A course designed to help local governing boards effectively integrate community water quality protection goals with growth and redevelopment. This one-day program aims to improve participants' understanding of land use and water quality linkages, the benefits of stakeholder and public involvement in environmental decision-making, and ways to integrate environmental protection and restoration into public policies and programs.
 - May 21, Beaufort: Getting to Know Wetlands: Value, Regulations & Conservation - Workshop topics included the value and function of wetlands, wetland regulations, and wetland restoration case studies. The workshop also included a presentation on the NC Wetland Assessment Method (NCWAM) and a field trip to a coastal wetland for experience in identifying wetland plant species and delineating wetland boundaries.
- CRC has adopted changes to docks and piers rules which give property owners flexibility in docking facilities (8 sq. ft. /linear ft. shoreline) and includes an 18 inch minimum distance requirement between the bottom of the floating structure and the substrate at normal water level or normal low water whichever is applicable for docking facilities under the General Permit if located in PNA, SAV or Shellbottom. The rule went into effect July 1, 2009.

DWQ/EMC

- DWQ is reviewing regulations for opportunities to provide incentives for upgrading all types of wastewater treatment systems and plans to make recommendation to the EMC in 2010.
- Four on-the-ground LID demonstration projects in the Neuse and Cape Fear basins and three LID education/guidance projects have been completed using 319 funding. Six additional projects are ongoing; five on-the-ground LID demonstration projects in the Neuse, Cape Fear, Tar-Pamlico, and Pasquotank basins and one educational project.
- DWQ's Coastal Stormwater Rules went into effect on October 1, 2008 requiring improved post construction stormwater management requirements.
- DWQ is developing a mitigation policy for intermittent streams that will go to public notice in August of 2009.
- DWQ has undertaken outreach programs to educate marina owners regarding the issue of wastewater and stormwater management.

WRC

- WRC is a member of Wetlands Function Assessment Team (WFAT) and participates in determining the status and trends of the state's wetlands.

DENR

Albemarle Pamlico National Estuary Program

- APNEP completed a project working with DMF that was funded by North Carolina General Assembly to monitor water quality parameters for river herring in the Albemarle Sound.
- APNEP identified a stream segment in the upper Tar River Basin for restoration of degraded waters and work towards removal from the Federal 303-d impaired waters listing.

- APNEP continues to support the Citizens' Monitoring Network (CMN); a network of private citizens who monitor surface water quality in the Albemarle-Pamlico estuary and its tributaries. The program began as an initiative of the Pamlico-Tar River Foundation in 1988, to protect, preserve and promote the water quality of the Tar-Pamlico River and its watershed. Today, the program includes all waters located in the Albemarle-Pamlico region. The CMN has three areas of activity: Baseline Monitoring, Targeted Monitoring and Surveys, and Water Quality Education. Program volunteers receive support in each of these areas through water quality education and training, QA/QC workshops, distribution of equipment and supplies, data management/analysis, and networking opportunities. Participants primarily monitor dissolved oxygen, pH, salinity, air and water temperatures, and turbidity to gauge the general health or quality of water in the estuary. Using basic but accurate water quality test kits, citizen volunteers analyze their water samples, observe qualitative factors such as weather conditions and other visual indicators, and record the results. All monitoring data are compiled by the CMN office at ECU. Information is available to the public on the APNEP website at <http://www.apnep.org/> and at <http://www.ecu.edu/icmr/cwqmp>

Division of Forest Resources

- The NCDFR purchased 5 additional sets of steel bridge mats and located 2 sets in the Neuse and Tar-Pamlico & Roanoke River Basins in 2008. A 6-year status report was compiled describing the use of bridge mats in NC for forestry. The report is online and can be accessed at: <http://www.dfr.nc.gov> Printed copies of the report will be available in October of 2009.
- The NCDFR has distributed an estimated 5,000 copies of its NC Forestry BMP Quick Reference Field Guide which was published last year.
- The NCDFR purchased and field-tested one TV/DVD monitor and is now ready to move forward with the remaining equipment purchases in 2009-10. This equipment will be used to support a forestry BMP outreach project that will bring the classroom to loggers in the woods.
- A revised 2nd edition of DFR's Riparian and Wetland Tree Planting Pocket Guide for North Carolina was produced, published and distributed in 2008 at the SE Stream Restoration Conference. The 2nd edition includes more information and color photographs.

Division of Soil and Water Conservation

- A marsh sill was added as a qualifying cost-share practice for the Community Conservation Assistance Program in DSWC.
- An additional \$1.1 million was made available for the implementation of environmentally superior alternatives to waste lagoon and spray field systems on hog farms through the Cooperative Conservation Partnership Initiative and funded by NRCS through DSWC.
- DSWC was awarded \$3 million in funding from the Clean Water Management Trust Fund (CWMTF) for the fourth phase of the voluntary hog lagoon buyout program. The finalists have been selected to participate in the buyout.

Ecosystem Enhancement Program

- EEP incorporated the Beddingfield Creek hydrologic unit into its Wake-Johnston Local Watershed Plan study area and has initiated water quality monitoring there. The watershed was originally proposed for long-term monitoring in the Urban Forest Watershed Protection and Education Initiative (UFWPEI).

September 2009 – August 2010 Planned Action and Needs

- Delineate SHAs in Region 3 (Approximately White Oak River Basin).(DMF/MFC, WRC, EEP/DENR).
- Conduct SHA evaluation and designation process for Region 2 (Pamlico Sound and tributaries).(DMF, WRC)
- Continue to review “Inner Banks” development issues and address environmental issues.(CRC/DCM, DWQ/EMC)
- Begin to address the challenges associated with Sea Level Rise and climate change more broadly in a context consistent with the reports of the Legislative Committee on Climate Change to NC.(DENR)
- Continue to increase public awareness on the value of and threats to coastal fish habitats and the role of the CHPP process to protect and enhance these resources.(DMF, DCM, EEP/DENR)
- Continue to study the feasibility and benefits of dam and barrier removal in general and for mitigation.(DMF/DCM, EEP/DWR/DENR, WRC)
- Examine the feasibility and preferred siting of wind turbines in North Carolina without significantly impacting fish habitat.(DENR)
- Pursue funding for the Community Conservation Assistance Program (CCAP) in the Division of Soil and Water Conservation.(DSWC/DENR)
- Seek dedicated funding to staff DCM’s Clean Marina Program and effectively implement Best Management Practices as a non-regulatory way to improve water quality in and around marinas and docks.(DCM, DENR)
- Continue development and refinement of shoreline stabilization rules that preserve ecosystem function and consider rising sea levels and a changing land/water interface.(DCM/CRC, EEP/DENR)
- Take steps to encourage more restoration of degraded waters and work towards removal from the Federal 303-d listing.(APNEP, DWQ)
- Continue to identify problems regarding infrastructure for Waste Water Treatment Plants and system maintenance. Work with the local governments to develop and implement plans to correct deficiencies.(DWQ)
- Continue to develop a non-traditional mitigation strategy with the White Oak basin as a pilot project. The consultants developing the Local Watershed Plan (East Carolina University and Environmental Defense Fund) are working through EEP’s Non-Traditional Mitigation Steering Committee and two ad hoc advisory committees to seek consensus goals and a viable mitigation strategy.(EEP/DENR)
- Work with the Division of Water Resources to minimize conflicts between Aquatic Weed Control practices and protection of SAV habitat.(DMF/MFC, WRC)
- Consider development of a conservation lease for the purpose of oyster and other habitat restoration.(DMF/MFC)
- Seek funding to initiate research on impacts of endocrine-disrupting chemicals to blue crabs and oysters.(DENR)
- Work with the Department of Agriculture and Consumer Services to develop and implement a drug disposal program for pharmaceuticals.(DMF/MFC)
- Complete photo-interpretation of SAV imagery of coast.(DMF, APNEP)
- Continue to study the feasibility and benefits of developing an SAV Restoration Program.(DMF, APNEP, EEP/DENR)
- Seek dedicated funding for the state SAV mapping program.(DMF, APNEP)
- Complete river herring spawning surveys in Albemarle system and prioritize obstruction removals.(DMF)

- Continue expanding the oyster sanctuary program, seeding sanctuaries with live oysters, and construct a shellfish hatchery.(DMF)
- Continue to work toward more funding for the Community Conservation Assistance Program. (DSWC)
- Workshops currently planned for next year include topics such as water reuse (i.e. rain water harvesting, gray water use), stormwater workshops for realtors, an invasive red fox symposium, a microbial pollution workshop, and a grant writing workshop depending upon budget constraints.(DCM/NERR)
- In the coming year, APNEP will work with the NC Division of Water Quality to implement several projects: 1) to host Coastal Stormwater and Riparian Buffer Rules Workshop for Development Professionals. 2) Develop information for display and distribution about Riparian Buffers and 401 Water Quality Certifications. Information will focus on the riparian buffer rules in the Neuse and Tar-Pamlico River Basins and the 401 Water Quality Certification Program which is in effect throughout the entire state. 3) A project will provide information to focus on students in K-12 understanding the biodiversity the lakes, streams and estuaries.(APNEP, DWQ)
- APNEP will continue to build upon the data inventory survey conducted in 2006 in partnership with the Virginia Institute for Marine Sciences. Data referenced in the survey for the Virginia portion of the Pasquotank and Chowan Rivers. Data will include monitoring data on water quality and living resources as well as land use, population trends and other potential ecosystem stressors. Analyses will be conducted for indications of change over the period of record. The goal is to develop a preliminary State of the River Basin report for the Pasquotank and Chowan Rivers. The approach will be holistic in that changes in monitored variables will be tracked throughout river basins and river systems. These stations are monitored by the Virginia Department of Environmental Quality. These data can be further analyzed to look for trends in seasons as well as trends in other monitored parameters. An attempt will be made to trace changes in water quality and living resources back to changes in the basin.(APNEP)
- DEH – SS will continue meeting with the Shoreline Survey Task Force finalizing proposed inspection program and put the plan in the form of a report for presentation to CHPP Steering Committee.(DEH-SS/DENR)

Introduction

Fisheries Reform Act

The North Carolina General Assembly established the Coastal Habitat Protection Plan program within the North Carolina Department of Environment and Natural Resources (DENR) with passage of the Fisheries Reform Act of 1997. The Act (General Statute or G.S. 143B-279.8) requires preparation of Coastal Habitat Protection Plans (CHPPs) for critical fisheries habitats in the coastal area. The Act states “[t]he goal of the Plans shall be the long-term enhancement of coastal fisheries associated with each coastal habitat.” Within DENR, the Divisions of Marine Fisheries, Water Quality, and Coastal Management are designated as the lead agencies for implementing the CHPP program. Many other DENR agencies also participate in CHPP work. By law the CHPP includes:

1. A description of fisheries habitats and their biological systems;
2. An evaluation of the functions, fisheries’ values, status, and trends within the habitats;
3. Identification of existing and potential threats to the habitats and impacts of those threats on coastal fishing; and
4. Recommended actions to protect and restore the habitats.

Role of the Commissions

The Coastal Resources, Environmental Management, and Marine Fisheries commissions adopted the CHPP in December of 2004. Now that the CHPP has been adopted, along with implementation plans which were adopted by each of the three original commissions in June and July 2005 (see Implementing the North Carolina Coastal Habitat Protection Plan 2005), rule making and policy actions taken by all three commissions are to comply “to the maximum extent practicable” with the plan.

The commissions with membership on the CHPP Steering Committee are to report by 1 September each year to the Joint Legislative Commission on Seafood and Aquaculture and the Environmental Review Commission on their progress in implementing the Coastal Habitat Protection Plan. This document reports on the progress made by the respective commissions and their supporting agencies, as well as other DENR agencies, in implementing the CHPP during year beginning in September 2008 and ending in August 2009.

North Carolina Coastal Habitat Protection Plan (CHPP)

The CHPP focuses on six basic fish habitats: water column, shell bottom, submerged aquatic vegetation (SAV), wetlands, soft bottom, and ocean hard bottom. A chapter is devoted to each type. Each of the habitat chapters is organized to provide the information specified in the Act:

- Description and distribution of the habitat,
- Ecological role and function,
- Status and trends,
- Threats, and
- Recommended management actions to deal with the threats.

The CHPP describes the functions of habitats necessary for production of economically important fish stocks and the links between those habitats and various life history stages of the fish. The CHPP also discusses the various types of threats to the habitats upon which productive coastal fisheries depend.

Moreover, the plan summarizes the institutional structures for management of fisheries habitat, adjacent lands, water quality, and fisheries in eastern North Carolina. Finally, the plan includes numerous management recommendations for the Coastal Resources, Environmental Management, Marine Fisheries and Wildlife Resources Commissions, DENR and its other agencies and others to implement in order to address the identified threats.

Attachment 1 lists the members of the CHPP Steering Committee for the 2008-2009 year.

Major Accomplishments of the CHPP Implementation Plan

After the CHPP was formally adopted in December of 2004, the commissions, their administrative divisions, and DENR also developed and adopted implementation plans during the summer of 2005 and again in 2007. These implementation plans detail more than 100 specific steps the agencies involved would take during the identified fiscal years to implement the CHPP recommendations. The accomplishments of the CHPP have been reported annually since 2006 through a CHPP Annual Report.

In the fall of 2007 the second two-year Implementation Plan was adopted by the original three commissions. Many of the implementation actions begun in 2005-2006 were substantially completed or underway in 2007. Budget problems slowed progress in CHPP implementation somewhat in FY 2008-09. However, numerous specific actions have been accomplished during the past two years, or are well underway to being accomplished. This past year, the Wildlife Resources Commission (WRC) was asked to be a full participant in the CHPP process and two WRC commissioners were added to the CHPP Steering Committee. Currently, all four commissions and their DENR respective agencies are active in using the CHPP and its recommendations as guidance in their regulatory and operational programs. Attachment 2 lists the four main agencies, and their statutory responsibilities, which have voting members on the CHPP Steering Committee. The full 2007-2009 Implementation Plan can be accessed through the following website: http://www.onencnaturally.org/pages/CHPP_Implementation.htm

Overall, the CHPP has been largely successful in implementing plan recommendations. To date, the greatest accomplishments of the CHPP have been non-regulatory. Prior to making large management changes, positions and funding were needed to assess compliance of existing environmental rules, complete mapping of fish habitats, and educate the public on environmental issues. Multiple large grants have been awarded to state agencies and universities to conduct research or projects in support of the CHPP. Examples include DCM receiving funding for the BIMP, shoreline mapping, and the CICEET project looking at shoreline stabilization; APNEP coordinating the pooling of resources to map SAV coastwide; and universities receiving Fishery Resource Grants (FRGs) and Coastal Recreational Fishing License (CRFL) grants to collect needed habitat information. Much has been done in those areas, but work still remains. The passing of the coastal stormwater rules marks the largest regulatory change that the CHPP influenced. It occurred through the hard work of numerous DENR staff, commissioners and CHPP supporters such as environmental NGOs. CRC also implemented sediment criteria rules for beach nourishment and other rule changes to minimize habitat impacts from water dependent activity. Regulatory changes for habitat protection tend to take longer to implement because scientific information is needed to support the change, discussions are needed among agencies, or educational outreach to stakeholders is required. Several large issues that involve regulations such as beach nourishment, estuarine shoreline stabilization, and protections for anadromous fish habitat are underway. Finally, the CHPP created a structured means for various agencies and commissions to discuss issues which have resulted in improved coordination and cooperation and better protection of coastal fish habitat.

Administration and Public Outreach

- **Administrative Activities**

During this past year, the second year of the most recent two-year implementation plan (2007-2009) has been at the forefront of the Department's priorities, as well as those priorities of its divisions and their respective regulatory commissions. This second iteration of the two-year implementation plan details more than 100 specific action items the agencies within DENR have undertaken, or will undertake, in an effort to carry out the ambitious CHPP recommendations. This most recent implementation plan remains posted on the CHPP web site, along with the accomplishments documented in the 2008 Annual Report in order to facilitate public review. The research priorities associated with the implementation of the CHPP are also a part of the CHPP website.

This past year, the Wildlife Resources Commission accepted an invitation to become full members of the CHPP Steering Committee. The WRC has been a part of the CHPP process from the beginning with several staff active on the technical aspects of the CHPP. With a significant amount of work being done in areas where the WRC has jurisdiction, River Herring, Strategic Habitat Area delineation and Anadromous Fish Spawning Areas, the CHPP Steering Committee felt the need to extend the invitation to fully participate in the CHPP decision making process.

The Coastal Habitat Protection Plan continues to receive significant support from the General Assembly. In the 2008-2009 fiscal year budget, the continuing effort to rebuild and rehabilitate North Carolina's oyster populations received a large amount of help from the legislature. The legislature appropriated \$2,000,000 to expand NC's Oyster Sanctuary Program, which included money for six new positions within DMF. Along with this appropriation, the General Assembly designated \$4.3 million of COPs money towards the building of an oyster research hatchery located at UNC-Wilmington. Additionally, \$146,312 was designated for River Herring restoration work from the money appropriated for the Fishery Resource Grant (FRG) Program. However, due to the current budget situation within the state, a good portion of these monies have been reverted back to the General Fund and most of the positions have been frozen.

In the fall of 2008 and throughout 2009, the CHPP Team continued the 5-year update and review of the Coastal Habitat Protection Plan mandated by the Fisheries Reform Act of 1997. According to that legislation, every management plan must be reviewed and updated at least every 5 years. The Team has been diligently working on this review, with the goal of having it completed and presented to the respective commissions late in the first quarter of 2010. Included in the update and review will be CHPP accomplishments, emerging issues such as Sea Level Rise, invasive species, pharmaceuticals in our waters, the ongoing effects of localized population increases on the health of our waters, status reports on each of the six identified CHPP habitats and any additional research needs that may be identified with the emerging issues.

- **Public Outreach**

The CHPP Steering Committee, now comprised of two members each from the Environmental Management, Coastal Resources, Marine Fisheries and Wildlife Resources commissions, continues to play a very active role in the CHPP implementation process. Members of the Steering Committee meet quarterly with senior DENR officials and technical staff from DENR divisions and the Wildlife Resources Commission to discuss CHPP-related topics and exchange information regarding CHPP implementation activities of the respective commissions and divisions.

In 2006, DENR assigned its Eastern Regional Field Officer as the coordinator for CHPP implementation. The CHPP Coordinator is strategically housed in DENR's Office of Conservation and Community Affairs, which also includes the Albemarle-Pamlico National Estuary Program (APNEP) and the One North Carolina Naturally program, both of which focus heavily on improved management of important habitats, especially in the coastal region.

The CHPP Coordinator and the CHPP Team members participate in relevant meetings and give numerous CHPP presentations at various gatherings concerning coastal issues. These groups include DENR and its agencies, the regulatory commissions, the Coastal Resources Advisory Council, North Carolina Sea Grant Program, APNEP, The Nature Conservancy, the NC Coastal Caucus, the North Carolina Coastal Federation, local governments, and several local civic clubs and groups with environmental concerns. The CHPP Coordinator is working with the Soil and Water Conservation District supervisors in the 20 coastal counties regarding specific issues pertaining to habitat conservation and protection. Team members participate in meetings associated with various CHPP implementation actions, such as the Beach and Inlet Management Plan Advisory Committee, Ocean Policy Steering Committee, Interagency Permit Review Workgroup, Interagency Inspection Workgroup and a Shoreline Stabilization Workgroup.

In 2008, the CHPP program published a twelve-page newsprint brochure entitled: "*Coastal Habitat Protection Plan for North Carolina: Celebrating Success and Looking Toward Tomorrow.*" This brochure continues to be a popular resource and it provides some excellent examples of CHPP success stories as well as a look towards some future CHPP opportunities. The brochure has been well received by the public and will continue to be an excellent resource to keep CHPP in the forefront on the issues involving the coastal habitats of eastern North Carolina. The brochure has been widely distributed through the aquariums, environmental education centers, state parks and through various DENR divisions. It will be readily available at the Seafood Festival in Morehead City in October, as well as the State Fair.

The CHPP tabletop display was used at several meetings concerned with coastal habitat. CHPP Team members and the Eastern Regional Field Officer provided updates to the CRC, EMC and MFC when called upon. Several of the efforts involving the CHPP and its recommendations have also been incorporated into DENR's Conservation Planning Tool. These include both SAV and Shellfish mapping efforts, Anadromous Fish Spawning Areas and Strategic Habitat Areas.

Other Accomplishments

The CHPP, as adopted in 2004, identified more than 90 research needs. In 2005, the CHPP Team summarized those needs in a report placed on the CHPP web site and distributed to the academic, and state and federal agency research community. The identified research needs continue to be a vital component of the CHPP and its 2007-2009 Implementation Plan. The original report of research needs continues to be available on the CHPP web site. With the 5-year update and review of the CHPP, it is anticipated that many new research needs will be identified and some original needs will have been met or answered. This new list of updated needs will also be housed on the website for use by academic and resource agency personnel.

The APNEP, in conjunction with NOAA, NCDOT, ECSU and several DENR agencies has taken the lead in funding and coordinating a statewide effort to aerially photograph all high salinity and low salinity beds of Submerged Aquatic Vegetation. Last fall, the DMF became the lead agency in this

interagency effort. The flights to digitally photograph the coastal waters of North Carolina were flown during the fall of 2007 and remaining flight lines were flown in the spring of 2008. A GIS analyst had been allocated by DMF to photo-interpret the imagery. The employee assigned to this task left state employment shortly after receiving the initial batch of photographs. The position has been frozen due to budget constraints since his leaving. When rectified, the photographs will be used by several agencies involved with permitting, as well as used to help inventory docks, piers and hardened shoreline structures. This undertaking is extremely important to the CHPP, as SAV is acknowledged to be a vitally important coastal habitat.

Primarily through the efforts of the Division of Coastal Management, much work has been done on finding ways to encourage property owners and developers to consider using alternative methods to shoreline stabilization other than vertical structures. The Division has provided recommendations for appropriate shoreline stabilization methods taking into account the various estuarine shorelines types found in eastern North Carolina. In light of climate change, and specifically sea level rise, this is becoming a strategically significant effort. In the early spring of this year, the North Carolina Coastal Federation hosted a workshop targeting resource agency personnel regarding alternative shoreline stabilization methods and living shorelines.

ATTACHMENT 1.

CHPP STEERING COMMITTEE MEMBERS, 2008 – 2009

Marine Fisheries Commission

Mr. Jess Hawkins	Morehead City	252-808-3354
Dr. B. J. Copeland	Pittsboro	919-837-5024

Environmental Management Commission

Dr. Charles H. Peterson	Morehead City	252-726-6841
Mr. Tom Ellis	Raleigh	919-872-0897

Coastal Resources Commission

Mr. Wayland Sermons	Washington	252-946-0006
Mr. Bob Emory	New Bern	252-633-7417

Wildlife Resources Commission

Mr. Bobby Purcell	Cary	919-387-0465
Mr. Ray White	Manteo	252-441-4464

ATTACHMENT 2.

NORTH CAROLINA COASTAL HABITAT PROTECTION PLAN STEERING COMMITTEE

North Carolina has a number of programs in place to manage coastal fisheries and the natural resources that support them. The Coastal Habitat Protection Plan (CHPP) has identified gaps in the protection provided for important fish habitats under these programs, and also notes that these habitats would benefit from stronger enforcement of existing rules and better coordination among agencies. The focus of the CHPP, per the Fisheries Reform Act of 1997, is on activities regulated by the Marine Fisheries, Coastal Resources, Environmental Management and Wildlife Resources Commissions. During the summer of 2007 each Commission and the Department of Environment and Natural Resources (DENR) adopted a second two-year set of plans to implement the recommendations found in the CHPP, once again with a focus on actions that could be taken based on existing resources and within the 2007-2009 budget cycle. Some actions are well underway towards being completed, while others are just beginning. Most will be completed before completion of the CHPP update, scheduled to be completed by late spring of 2010. There continues to be a basic understanding among agencies that all recommendations and their associated actions will be supported regardless of lead agency. Listed in this attachment are the agencies and their respective commissions with voting status on the CHPP Steering Committee.

Department of Environment and Natural Resources

DENR is the lead stewardship agency for the preservation and protection of North Carolina's outstanding natural resources. The Department, which has offices from the mountains to the coast, administers regulatory programs designed to protect air quality, water quality, and the public's health. Through its natural resource divisions, DENR manages fish, wildlife, forestland and wilderness areas. The DENR implementation plan focuses on coordination among the Commissions and the Department, as well as ensuring that all DENR Divisions are taking actions consistent with the goals and recommendations of the CHPP.

Marine Fisheries Commission and Division of Marine Fisheries

The Marine Fisheries Commission (MFC) and Division of Marine Fisheries (DMF) manage the commercial and recreational fisheries in North Carolina's estuarine and ocean waters. These waters, including their specific physical habitats (water column, wetlands, sea grasses, soft and hard bottoms, and shell bottoms), produce the finfish, shrimp, crabs, oysters, and other economically important species sought by fishermen, as well as the forage base that supports them. The Division implements the Commission's rules and Department initiatives. The Division's mission is to ensure sustainable marine and estuarine fisheries for the benefit of the people of North Carolina. Division staff drafted the CHPP, and they will staff many of the groups working on implementation actions. Staff in DMF district offices will also utilize CHPP information to review potential impacts of coastal development projects.

Environmental Management Commission and Division of Water Quality

The Environmental Management Commission (EMC) is responsible for adopting rules for the protection, preservation and enhancement of the State's air and water resources. The Commission oversees and adopts rules for several divisions of DENR, including the Divisions of Air Quality, Water Resources, and Water Quality. The goal of the Division of Water Quality (DWQ) is to maintain or restore

and improve the aquatic environment and to ensure compliance with state and federal water quality standards. In coordination with the CRC and MFC, and their respective staffs, the EMC and DWQ have developed specific actions to implement the CHPP recommendations.

Coastal Resources Commission and Division of Coastal Management

The Coastal Resources Commission (CRC) establishes policies for North Carolina's Coastal Management Program and adopts implementing rules for both the N.C. Coastal Area Management Act (CAMA) and the N.C. Dredge and Fill Law. The commission designates areas of environmental concern, adopts rules and policies for coastal development within those areas, and certifies local land-use plans. The Division of Coastal Management (DCM) serves as staff to the CRC and works to protect, conserve, and manage North Carolina's coastal resources through an integrated program of planning, permitting, education and research. With jurisdictional authority at the interface of many of the habitats identified in the CHPP, the CRC and DCM take actions to complement those of the MFC/DMF and EMC/DWQ.

Wildlife Resources Commission

The Wildlife Resources Commission (WRC) and its agency became full members of the CHPP Steering Committee and the CHPP process in the fall of 2008. The WRC has as its mission "To manage, restore, develop, cultivate, conserve, protect, and regulate wildlife resources and their habitats for the citizens of the state of North Carolina." The Wildlife Resources Commission and its staff, as it directly relates to the CHPP, manage the state's freshwater fisheries through fisheries research, fisheries management, hatchery operation and habitat conservation, administers and coordinates educational programs designed to facilitate conservation of the state's wildlife and other interrelated natural resources and the environment people share with them.

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
1.1. Enhance enforcement of, and compliance with, Coastal Resources Commission (CRC), Environmental Management Commission (EMC), and Marine Fisheries Commission (MFC) rules and permit conditions.					
Strengthen enforcement programs by seeking legislation that will raise maximum Coastal Area Management Act penalties to \$1,000 for a minor development violation and \$10,000 for a major development violation.	DENR	2008	C	Rules effective 1 February 2008 (9/15/2008)	289
The Department will seek funding for additional compliance positions in appropriate programs.	DENR	Ongoing	C	DWQ needs one more for Wilmington. Land Resources needs positions; CRAC sending letter of support for establishment of additional DWQ compliance positions (5/1/2007). Washington stormwater compliance position created in 2007 was filled in 2008. Will begin work by establishing priorities and coordination of enforcement. Do not know if Raleigh compliance positions have been filled or how many inspections have been done. Continued inspection of high density Coastal Stormwater Permits as they come up for renewal (10/14/2008)	253
The Division of Coastal Management will develop a Compliance Education Coordinator position. Compliance promotion by DCM will encourage voluntary compliance with CRC and CAMA/Dredge and Fill rules, laws, and requirements, helping overcome some of the barriers to a successful and effective enforcement program.	DCM		PC	Moving forward (9/15/08). DCM was successful in securing funding for this position through the express permitting program. However, the budget difficulties caused the funding to be rescinded. DCM will pursue this funding again once the state budget situation stabilizes (7/27/2009).	290
Cross train Marine Patrol officers to take note of and report violations of EMC rules and permits in Coastal Waters to appropriate agencies.	DMF-Marine Patrol	Plan in FY 2007-08; train in 2008-09; implement following training.	PC	MP officers were trained by CAMA enforcement officers. Report when see suspicious activities such as nighttime or weekend dredging, shoreline disturbance without turbidity curtains installed, sediment plumes, and fish kills. DCM has a contract to fly monthly with CAMA to check for violations (7/27/2009).	168
Enhance DMF habitat alteration permit review capability.	DMF-Habitat Protection section	Establish program and staff in FY 2008-09	PC	One position in each regional office plus one clerical position (total=5) as requested in DMF expansion budget (6/11/07). Requested 2 positions through CRFL grant and expansion budget processes. Currently pending (10/9/2008). Joint MFC-WRC CRFL committee approved 2 positions for 5 yrs. The filling of these positions was delayed by budget processes, but is still proceeding (7/27/2009).	165

¹ C=Complete, PC=Partially complete, NA=No action, DK=Unknown

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Design an effective Inspection Program to focus more resources on areas that are critical to coastal habitat protection similar to Shellfish Sanitation shoreline survey program.	DEH-SS	2007-08	PC	DEH-SS formed the Task Force in late 2008. DWQ regional offices have prioritized inspections of sites associated with SA waters (7/27/2009).	166
Organized a DENR interagency inspection task force to examine the issue and develop a system to accomplish the objective	DEH-SS		C	Taskforce held meeting in December 2008 and March 2009. Membership from DWQ, DCM, DEH, and DMF (7/27/2009).	296
Produce a report with proposed new inspection regime and list of additional resources necessary to execute the plan	DEH-SS		PC	Draft report outline will be presented to CSC at their next meeting (7/27/2009).	297
Begin implementing the interagency inspection plan (10/14/2008).	DEH-SS		NA	Plan not yet developed (7/27/2009)	298
Conduct outreach to educate citizens in their jurisdictions about DWQ's Neuse and Tar-Pamlico riparian buffer rules.	DWQ	Ongoing	PC	DWQ created an educational brochure in spring 2007 that will be updated in 2010. DWQ will schedule workshops in 2010 aimed at the real estate community (7/27/2009). In the coming year, APNEP will work with the DWQ to implement several projects: 1) to host Coastal Stormwater and Riparian Buffer Rules workshops for development professionals, 2) develop information for display and distribution about Riparian Buffer Rules and 401 Water Quality Certification Program, which is in effect throughout the state, and 3) provide information to focus students in K-12 on understanding the biodiversity of lakes, streams, and estuaries.	167
Share ACE permit tracking system to address cumulative impacts.	DCM, ACE		NA	The Division is re-evaluating this proposed action (9/15/2008).	153
Coordinate DMF, DWQ, and Dept. of Agriculture and Consumer Services actions concerning aquaculture operations in order to protect and enhance surface waters and estuarine resources.	DMF-Habitat Protection and Resource Enhancement sections,	2008-09	PC	Issue of striped bass pond discharge raised at MFC Habitat & Water Quality Committee due to high chl a levels at discharge sites. DWQ submitted a draft SOC for final review. Once a DWQ consensus has been reached the SOC will be sent to the first five farms for the signature. SOC calls for the preparation of a Farm Management Plan, which will minimize water quality impacts during the life of the SOC, and a Final Solution Plan which will, when implemented resolve all water quality standard impacts (10/9/2008). DWQ has implemented a SOC for aquaculture operations. The first 5 or ~ 12 striped bass operations have submitted Farm Management Plans which include	131

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
				operation information that specifies operations and minimizes water quality impacts. DWQ requested additional information. The farms will then have to submit a Final Solution Plan that analyzes impacts and specifies plan to treat, reuse, and irrigate discharge water as much as possible. Will be required to conduct 18 mo study on water quality impacts/effluent characterization at various ages of operation. Will then be eligible for a NPDES permit. Once process complete for first five, others will have to comply. DWQ-All farms now have SOC's. Draft farm management plans have been submitted to DWQ. DWQ has reviewed the plans and requested additional information on each. The Division of Soil and Water Conservation has convened a workgroup to identify ways they Agriculture Cost Share Program can assist HSB farmers to implement effective BMPs to address discharge concerns (7/27/2009).	
Develop permit application survey protocols for shellfish and SAV habitats for CAMA applicants to use.	DMF-Habitat Protection	2007-08	C	Draft protocol developed. Incorporated into DMF permit review guideline document (10/9/2008).	133
Ensure consistency in habitat definitions among agencies and commissions.	DMF-Habitat Protection section	Ongoing	C	Draft rule language for SAV habitat being developed by DENR interagency workgroup; public hearings in Oct. Working with DCM since it's related to dredging and dock rules (10/9/2008). MFC approved revised definition of SAV habitat in 2009. CRC referenced such definition in revised dock rules (7/27/2009).	152
1.2. Coordinate and enhance water quality, physical habitat and fisheries resource monitoring (including data management) from headwaters to the nearshore ocean.					
Enhance dependable water quality monitoring by investing in Neuse Estuary MODMON and FerryMon.	DENR	Ongoing	C	Continued water quality monitoring in the Neuse River by way of the MODMON and FerryMon programs (10/14/2008).	184
The Department, through the Division of Environmental Health, will develop a data system for monitoring data and mapping of the closure of shellfishing waters to enhance the sharing of information among Departmental Divisions.	DEH-SS		PC	All shellfish closure maps available on DEH-SS and NC-One map websites (5/1/2007). Monitoring data IBEAM development has been at a standstill. No DENR programmer available to complete IBEAM system for water sampling data and shellfish closure data (10/14/2008).	185
The Department, through the Division of Environmental Health, will continue to refine and expand the data gathered in shoreline surveys to more effectively assess pollution impacts to shellfish growing areas.	DEH-SS	Ongoing	C	New shoreline methodology has been expanded to all shellfish growing areas for both the Triennial and Annual Shoreline Surveys with 60% complete. Problems/violations/areas of concern are reported to the appropriate agency with jurisdiction regarding the violation. Spreadsheet attached listing Growing Area Shoreline Surveys completed using the new methodology (10/14/2008). Shellfish Sanitation Shoreline Survey Coordinator has held several meetings with	186

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
				representatives of both DENR and County agencies. DEH-SS has produced a draft SOP document outlining the new shoreline survey methodology program procedures. Progress has continued on expansion of the new methodology to all coastal growing areas. Draft letter to lead CHPP agencies complete and will be sent to CHPP team for review. Shoreline Survey "Task Force" will be formed by the end of this year to review DEH-SS Shoreline Survey SOP and define an inspection program to enhance habitat protection.	
The Department, through the APNEP, will develop a comprehensive monitoring plan for the estuarine system.	APNEP	End of 2008	PC	Coordinate with data sharing processes (ActionID 132). Related to ActionID 188: development of estuarine and nearshore health indicators. APNEP's Living Aquatic Resources and Water Resources Monitoring Teams, whose membership include state and federal agency plus university representatives, began work on developing monitoring plans for freshwater, estuarine, and marine habitat indicators (10/8/2008). DWQ-The Water Resources Monitoring Team met on 8/6/08 to begin drafting indicator-metric proposals (7/27/2009). APNEP-Working with EDF to develop comprehensive assessment methodology for wetland functionality in the Chowan estuary in western Albemarle Sound, as the basis for setting goals for wetland extent and condition, developing programs to achieve those goals, and tracking progress. The work will be used to prioritize short-term actions, and as an integral part of long-term implementation plans for state and federal management of the region. The APNEP continues to support the Citizen's Water Quality Monitoring Program (8/7/2009).	187
Analyze DMF data to develop fish-based habitat indicators.	DMF-Fisheries Management and Habitat sections	End of 2008	C	Indicators developed for DMF habitat and fish indicators selected by APNEP – so. flounder, shrimp and crab populations, clam & oyster extent, obstructions to upstream migration, shellfish disease, anadromous fish spawning areas. Sea Grant fellow analyzed habitat indicators in Albemarle Region (10/9/2008). DMF completed previously, but APNEP still working on it. Need to incorporate core indicators into CHPP to track over time. DMF conducted data analysis as part of the SHA Region 1 evaluation and found alteration rating to be good indicator for fish abundance/diversity (7/27/2009).	134
Develop a suite of indicators of estuarine and nearshore coastal health.	APNEP	Start in 2006-07; complete development by Dec 2007	PC	Finalizing ecosystem indicators (10/8/2008). Duplicate of Action 134?? Combine? (7/27/2009) APNEP will continue to build upon the data inventory survey conducted in 2006 in partnership with the Virginia Institute for Marine Sciences. Data referenced in the survey are for the Virginia portion of the Pasquotank and Chowan Rivers. Data will include monitoring data on water quality and living resources as well as land use, population trends and other potential ecosystem stressors. Analyses will be conducted for indications of change over the	188

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
				period of record. The goal is to develop a preliminary State of the River Basin report for the Pasquotank and Chowan Rivers. The approach will be holistic in that changes in monitored variables will be tracked throughout river basins and river systems. These stations are monitored by the Virginia Department of Environmental Quality. These data can be further analyzed to look for trends in seasons as well as trends in other monitored parameters. An attempt will be made to trace changes in water quality and living resources back to changes in the basin (8/7/2009).	
Work with other DENR agencies to develop data sharing processes. Specifically address data types and standards, data sharing standards, definitions, web services, scaling, integration mechanisms, administration, QA/QC, and other issues.	DMF-Fisheries Management and IT sections	2007-09	PC	Coordinate with comprehensive monitoring program (ActionID 187). Fisheries Management and IT sections. 1) DMF is developing process for documenting DMF reports and data sets. Will be available on website for other agencies. 2) Provided GIS habitat data to One NC Naturally for the Conservation Planning Tool. DCM's Estuarine Shoreline Mapping Summit to develop consistent mapping strategies is part of this effort (9/15/2008). DMF Library Committee drafted SOP for maintaining database of DMF gray literature - FMPs, federal aid, CRFL, ASMFC compliance, License, Habitat, Resource Enhancement reports. WRC frequently shares data with DMF, DWQ, DCM, and the Natural Heritage program to update files and address wildlife concerns (7/27/2009)	132
Host Forum for Coordinating Water Related Monitoring among Government Agencies, Universities, and Local Governments.	DWQ	2008	C	Hosted NCforWater at UNC Charlotte in May 2008, a water quality monitoring forum aimed at coordinating monitoring efforts among state and federal agencies, universities, and local governments (10/14/2008).	286
1.3. Enhance and expand educational outreach on the value of fish habitat, threats from human activities, effects of non-native species, and reasons for management measures.					
The Department, through the Public Information Office will coordinate with the Zoo, Aquariums, Museum of Natural Sciences, State Parks, Educational State Forests and Environmental Education Centers to integrate the relevant components of the CHPP into exhibits and programs.	DENR Public Information Office	2007-09	DK	(10/20/2008)	190

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Develop and implement an educational outreach plan for CHPP.	NERR	Ongoing	PC	NC-NERR included development of the plan in its activities for FY 07-08 (5/1/2007). NCNERR and APNEP produced a Newspaper education insert for the Raleigh News and Observer in November 2007. A full page of the insert was dedicated to Coastal Fish Habitats. 170,000 inserts were distributed throughout the State. NCNERR designed the centerfold of the CHPP update in May 2008. 100,000 copies were distributed throughout the State. NEER also: (1) produced an interpretive sign on Coastal Fish Habitats for the Rachel Carson Boardwalk, (2) developed two curricular activities (Estuary Keeper & ECO-Logical) that focused on CHPP habitats, (3) held a Stormwater Management workshop in the Fall of 2007, and (4) developed a one-page educational brief on Stormwater Management for the CRAC in Sept. 2007. NCNERR encourages Graduate Research Fellow applicants to address CHPP research priorities (9/15/2008).	20
N.C. NERR will include a segment of E-Live to focus on fish habitat.	NERR	Ongoing	PC	E-Live has featured shell bottom and SAV in its 2007 session; 2008 session will focus on soft bottom (9/15/07). E-Live has been discontinued due to budget constraints (7/27/2009).	192
North Carolina's Clean Marina Program and Clean Vessel Act activities will emphasize the threats to fish habitat and benefits of BMPs.	DCM	Ongoing	PC	DCM has partnered with Sea Grant to revitalize the Clean Marinas Program and to assist DCM with implementation of BMPs at all coastal marinas. Clean marinas BMP manual being reviewed by DWQ. An Advisory Committee has been established to review criteria and check list. Clean Boating Guide distributed to marinas (5/1/2007). Two Clean Marina workshops held in December 2007 focused on power washing (9/15/2008). DCM was successful in securing funding for a position to coordinated both of these programs through the express permitting program. However, the budget difficulties caused the funding to be rescinded. DCM will pursue this funding again once the state budget situation stabilizes. Once a position is established, the agency will be able to enhance the programs with a CHPP focus (7/27/2009).	193
DCM and N.C. Sea Grant will incorporate CHPP into their research and education efforts.	DCM, Sea Grant	Ongoing	PC	The Cooperative Institute for Coastal and Estuarine Environmental Technology has awarded a \$717,000 grant to the N.C. National Estuarine Research Reserve and the NOAA Center for Coastal Fisheries and Habitat Research to examine different methods of erosion prevention in sheltered coastlines. The project, "Sustainable estuarine shoreline stabilization: Research, education, and public policy in North Carolina," is focused on understanding the environmental and economic tradeoffs of alternative erosion control measures. The project focuses on three regions along North Carolina's coast (Northern, Central and Southern), where researchers will assess the ecosystem impacts of shoreline stabilization. The project will also design and construct a demonstration project based on alternative shoreline	195

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
				stabilization techniques at the Rachel Carson component of the NC NERR. During the two-year project, they will develop an approach to evaluate ecological and socioeconomic costs and benefits of shoreline erosion and protection alternatives. The NC NERR will develop outreach and educational products to disseminate the knowledge and tools developed by the research team (7/27/2009). The NC Coastal Reserve conducted a survey of members of the NC Interagency SAV Work Group to determine SAV outreach needs. The survey was used to develop a matrix of priorities for outreach products and audiences, as well as a plan to address those needs. The plan was incorporated as an outreach task of an SAV monitoring proposal submitted by members of the SAV Work Group for 2009 NC CRFL Marine Resources funding. Although the outreach task was not funded for 2009, it provides a basis for future proposals (7/27/2009).	
Create interactive display(s) showing habitat functions and threats for use at festivals, etc.	DMF-Public Information section	2008	PC	Public Information section. DMF is partnering with other DENR agencies to develop a "Habitat House" (env. friendly house) as educational display at state fair (10/9/2008). Event cancelled due to budget problems. WRC demonstrated habitat values at the State Fair, the three regional Wildlife Education Centers, Pechman Fishing Center, Outreach programs, festival booths, and mobile aquarium (7/27/2009).	135
Develop and distribute brochures about fish, fish habitat, and fishing to be available for general distribution by DENR staff.	DENR, NERR	2007-09	PC	NCNERR will print out copies of the Coastal Fish Habitat interpretive sign for the Seafood Festival (9/15/2008).	269
Educate traditional economic interests on the impact of stormwater rules	DWQ	Ongoing	C	Sponsoring five workshops in September 2008 to inform consultants, developers, local government, and other state agencies on the impact of new stormwater rules (10/14/2008).	285
1.4. Coordinate rulemaking and enforcement among regulatory commissions and agencies.					
The Department will hold quarterly meetings on proposed projects and enforcement cases that are or may be subject to the permitting or enforcement jurisdiction of the programs of more than one division and invite other state and federal agencies to participate as appropriate.	DENR	Ongoing	PC	Divisions and agencies that will participate in meetings include Division of Coastal Management, Division of Water Quality, Division of Marine Fisheries, Division of Land Resources, Division of Environmental Health, Wildlife Resources Commission and U.S. Army Corps of Engineers. Discussion will include cumulative impact and SEPA concerns (9/15/2008). Meetings have been canceled due to budget constraints since 2009 (7/27/2009).	196
The DFR will revise its Memorandum of Agreement (MOA) documents with the NC Division of Land Resources and the NC Division of Water Quality to ensure compliance monitoring and enforcement	DFR	Late 2009	PC	Project delayed due to staff vacancy. [The Water Quality & Wetlands Staff Forester position accountable for completing this project was refilled in early 2008.] Additionally, the NCDFR will work with the US Army Corps of Engineers, Wilmington District, to create an additional guidance document for the forestry community that provides	169

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
policies are consistently practiced in a timely and seamless manner. These MOAs primarily address interdivisional communication on the nine forestry performance standards known as the Forest Practice Guidelines Related to Water Quality (FPGs) and the Riparian Buffer Rules applicable to NC's river basins.				interagency consensus on what is allowable minor drainage in wetlands. Other forestry stakeholders will be involved in this guidance development process (9/4/2008). The DFR facilitated the formation of a silviculture and wetlands regulatory guidance group with the USACE (Wilmington district), the USEPA, the DWQ, and NCSU. The goal of this group is to give guidance to the forestry community that provides interagency consensus on forest management activities in wetlands.	
DWQ Basinwide Planners review CAMA Land Use Plans	DCM, DWQ	Ongoing	PC	Reviewed plans for Caswell Beach, Holden Beach, North Topsail Beach, Ocean Isle Beach, Swansboro, Tyrrell County/Columbia, and Sunset Beach (9/15/2008). Reviewed plans for Craven County, Dare County, Caswell Beach, Holden Beach, Ocean Isle Beach and Sunset Beach. DWQ-Reviewed during 2008 and so far this year: Tyrrell County/Town of Columbia 2007 Draft LUP, Town of Holden Beach 2007 Draft LUP, Town of Caswell Beach 2008 Draft LUP, Town of Ocean Isle Beach 2007 Draft LUP, City of Havelock 2030 Comprehensive Plan, Town of Windsor CAMA Core Land Use Plan, Town of Southern Shores' CAMA Core Land Use Plan Update, Town of Nags Head 2006 Draft LUP, 2008 Dare County Land Use Plan Update, Town of Swansboro 2007 Draft, Onslow County 2007 Draft LUP, Holden Beach Draft LUP, Manteo Draft LUP (7/27/2009).	291
2.1. Evaluate potential Strategic Habitat Areas by:					
a) coordinating, completing, and maintaining baseline habitat mapping (including seagrass, shellbottom, and other bottom types) using the most appropriate technology;					
Map submerged aquatic vegetation (SAV) in coastal North Carolina.	APNEP, DMF-Resource Enhancement, Fisheries Management, and Habitat Protection sections	Complete initial coastwide mapping 2007-08	PC	All photos taken (1795 linear mi) in fall 2007 and spring 2008 with pre-water clarity monitoring. 1490 ground truth points taken in 67 areas. Photos partially photo-interpreted. Expected due date mid 2009 for fall 2007 photos (10/9/2008). Photos partially photo-interpreted. Position vacancy in winter 2008 stopped progress. Position frozen due to budget problems. The DWQ Pamlico and Neuse Rapid Response Teams (RRTs) continue to participate in a special study that was initiated in 2005 involving shoreline mapping of the Western Pamlico Sound and associated tributaries. RRT SAV surveys will continue 2009, concentrating efforts on the Pungo River tributaries, Jones Bay, Rose Bay, Porpoise Bay, Swanquarter Bay. Areas that have been found have no SAV present in earlier years may be revisited (7/27/2009).	202

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Continue mapping of all shallow estuarine bottom and bottom types.	DMF-Resource Enhancement section		PC	Working to complete western Pamlico near Swanquarter and Brunswick Co. In 2008, mapped 63,504 acres in Brunswick, Onslow, Carteret, Dare, Hyde and Beaufort Counties. Expect to have all shellfish bottom mapped by Dec 2009 (10/9/2008). Working to complete Hyde County/Pamlico Sound areas from Swan Quarter to Engelhard as well as Brunswick Co. In 2009, mapped 26,336 in Brunswick, Onslow, Carteret, Dare, Hyde and Beaufort Counties. Expect to have all shellfish bottom in Hyde County mapped by Dec 2010. The completion of both Hyde and Brunswick County areas have been set back due to past and current loss of staff, as well as the current state appropriated position hiring freeze and current budget restraints. As of 7/9/09, approximately 7.15% of Brunswick County areas have been mapped. Mapped areas extend from the Shallotte River south to the South Carolina border. (S001, S004, S005, S006, S007, S008, S009, S010, S011, without land strata acreage calculated) (7/27/2009).	203
Map deep (> 15 ft) estuarine bottoms, starting with lower Neuse River.	DMF-Resource Enhancement section	Begin 2007-08	NA	Developing protocol using Acoustic Ground Discrimination System. Will train techs in fall (10/9/2008). Efforts on hold, program needs additional staff and funding to support such operations to map the 918, 639 acres of waters outside current Shellfish Mapping Program boundaries (depths >15 ft). Currently plan to map specific sites using AGDS (sanctuaries, cultch planting sites, inshore artificial reef sites, and future sanctuary/reef sites) as time, manpower and resources become available in 2009-2010 (7/27/2009).	254
N.C. NERR will map SAV within reserve boundaries with data acquisition coordinated with multi-agency coastwide mapping effort: Repeat Rachel Carson mapping and map Masonboro and Currituck sites.	NERR	2007-09	PC	Completed the mapping of Rachel Carson Reserve and Masonboro Island Reserve. Planning to map the Currituck Banks Reserve in 2009 (9/15/2009). A field survey of SAV at the Currituck Banks NC Coastal Reserve component has been postponed until spring of 2010, pending lifting of State travel and staffing restrictions. The field survey will be conducted following protocols used for surveys that have been conducted for the Rachel Carson and Masonboro Island Coastal Reserve components (7/27/2009).	205
b) selective monitoring of the status of those habitats;					
Conduct cooperative DMF/NOAA research evaluating environmental conditions needed to provide suitable SAV habitat.	DMF-Habitat Protection section, APNEP	Begin summer 2007	PC	Original DOT funding fell through. However, APNEP/NOAA/ECU submitted CRFL proposal for this. Pending (10/9/2008). CRFL grant approved for APNEP/ECU/NCSU/NOAA project to test monitoring techniques and collect associated environmental data. Work to be done in 2009 growing season (7/27/2009).	138

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
DMF and NERR will initiate SAV monitoring of sentinel sites	DMF, NERR	2008	PC	Initial concepts have been discussed at NC SAV Workgroup meetings. Monitoring activities are dependent on identification of funding; a multi-agency SAV Workgroup team submitted a proposal for long term field monitoring of SAV for CRFL funding in Aug. '08. NCNERR sites may be included in monitoring sites if the project is selected for funding (9/15/2008). The NC Coastal Reserve conducted a survey of members of the NC Interagency SAV Work Group to determine SAV outreach needs. The survey was used to develop a matrix of priorities for outreach products and audiences, as well as a plan to address those needs. The plan was incorporated as an outreach task of an SAV monitoring proposal submitted by members of the SAV Work Group for 2009 NC CRFL Marine Resources funding. Although the outreach task was not funded for 2009, it provides a basis for future proposals (7/27/2009).	154
c) assessing effects of land use and human activities on those habitats.					
Conduct research on the effects of current dock siting practices on SAV and shell bottom, and determine design modifications that would minimize impacts.	DMF-Habitat Protection section, DCM	2008-09	NA	Possible federal aid or university research project (10/13/2008). DMF intern in 2009 conducted preliminary study in New Hanover Co. looking at effect of floating docks, lifts, & boat stops on benthic habitat condition. Draft report completed. More research needed to support any management recommendations (7/27/2009).	208
d) and other SHA related activities.					
Expand CMAST fellows program to include habitat and SHA research.	DMF-Habitat Protection section and Directors Office	2008-09	C	Habitat section and Directors Office. CMAST fellow Tim Ellis analyzed Program 100 data in relation to SHA analysis (10/13/2008). 2009 CMAST fellow hired. Will compile GIS data to continue SHA analysis for other regions (7/27/2009).	278
2.2. Identify and designate Strategic Habitat Areas using ecologically based criteria, analyze existing rules and enact measures needed to protect Strategic Habitat Areas, and improve programs for conservation (including voluntary actions) and acquisition of areas supporting Strategic Habitat Areas.					
Conduct SHA evaluation and designation process for Albemarle Sound area.	DMF-Habitat Protection section, WRC	2007-08	C	Habitat section. Region 1 (Albemarle Sound) SHA committee formed. Have completed draft selections and public workshop. Final report pending (10/13/2008). Region 1 report completed and SHA nominations recognized by CSC and MFC and will be incorporated into DENR's Conservation Planning Tool (7/27/2009).	140
Conduct SHA evaluation and designation process for Region 3 (Core/Bogue/White Oak/New River).	DMF-Habitat Protection section, WRC, EEP	2008-09	PC	GIS data layers being assembled (10/13/2009). GIS data layers nearly complete and Sea Grant fellow hired to conduct MARXAN analysis (7/27/2009).	141
Conduct SHA evaluation and designation process for Region 3 (Pamlico Sound and tributaries)	DMF-Habitat Protection section, WRC, EEP	2008-09	PC	GIS data layers being assembled (10/13/2008). GIS data layers nearly complete and Sea Grant fellow starting in September will be conducting MARXAN analysis (7/27/2009).	284

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Integrate information resulting from SHA committee into DENR Divisions' guidelines, policies, and rulemaking.	DMF-Habitat Protection section and Directors Office, WRC	Start July 2007; continue through SHA designation	NA	Habitat, MFC, and Directors Office. Meeting was held to discuss management options (10/13/2008). Not done (7/27/2009).	210
MFC/WRC designate Anadromous Fish Spawning Areas.	DMF, WRC	2007-08	C	Designated by MFC (eff. 12/07) and WRC (eff. 7/08). Maps available from DMF (7/27/2009).	207
Work with DENR to include SHA priorities within EEP local watershed plans and DENR conservation planning tool.	DMF-Habitat Protection section	2007-09	PC	Some data provided to DENR for Conservation Planning Tool. Working with EEP on compensatory mitigation. EEP will continue to participate in the Conservation Planning Tool effort and help facilitate SHA updates as they become available (10/13/2008). Provided maps and data to EEP. Need to also provide to DENR Conservation Planning Tool, APC3, CWMTF, local governments, other conservation groups (7/27/2009). EEP has incorporated DMF's proposed Strategic Habitat Areas data into its Targeted Local Watershed (TLW) designation for the 2009 Chowan River Basin Restoration Priority Plan (RBRP) update. The inclusion of this data in the RBRP and future ones is intended to elevate the importance of fish habitats in the selection of TLWs in which EEP and others will implement their restoration projects (8/14/2009).	270
3.1 Greatly expand habitat restoration, including:					
a) creation of subtidal oyster reef no-take sanctuaries,					
Enhance oyster sanctuaries in Pamlico Sound system. Expand several sanctuaries; plan new sites.	DMF-Resource Enhancement section		PC	In 2008, ~7,300 bu 8694 tons rock and ~300 bu of remotely set oyster shell were deployed on four sanctuaries. Legislature allocated \$2 million in appropriations - will support 5 new positions, purchase of rock material, and establishment of remote setting programs (10/13/2008). 2008-2009 18,000 tons marl planned for deployment this yr (1/2 at new site, 1/2 at 2 other existing sites). Due to budget shortages, legislature greatly reduced funding, eliminating new positions, but retaining approximately \$1million for material purchases (7/27/2009).	212

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Enhance Oyster Shell Recycling Program. Discourage use of shell material for landscaping or other uses besides shellfish cultch.	DMF-Resource Enhancement section	Ongoing	PC	State law prohibits shell disposal in landfills. Through increased public awareness, over 25,586 bu shell were collected in 2008. Total of 231,403 bu oyster cultch (111,000 bu) and marl (105,000 bu) planted. Increased partner assistance in collections. Appropriated additional \$ for seasonal recycling program (10/13/2008). 2009 - 23,162 est. bushels of recycled oyster shell collected. 70% from restaurants, 36% public collection sites, 5% special events. 135,259 bushels oyster shell purchased and 44,333 bu marl. Total of ~ 202,700 bu planted on cultch sites throughout the coast (170,000 done right now but expect to finish before end of 2009) (7/27/2009).	213
Monitor all oyster sanctuaries for oyster recruitment, survival, and growth.	DMF-Resource Enhancement section		PC	Prg. 611 established for oyster sanctuary monitoring. 7 of 9 oyster sanctuaries monitored fall-winter 2008. Parameters included size structure of oysters, survival, growth rates, wq conditions, colonization on oyster shell (10/13/2008). 2 (Hatteras and Ocracoke) of 9 remaining sanctuaries monitored in June 2009. Large mortality at Ocracoke (7/27/2009).	214
Work with university researchers to monitor fish/invertebrate use of oyster sanctuaries and effect of oysters on local water quality.	DMF-Resource Enhancement section	Start 2007-08	PC	CRFL grant award to Dr. Peterson to look at fish utilization on oyster sanctuaries. DMF working to assign different researchers to different sanctuaries to spread out monitoring (10/13/2008). Peterson/Nate Gerald field work to begin in summer 2009. Eggleston/Erica Millstein - research project on sea bass utilization and economic benefits (7/27/2009).	261
Cooperate with university researchers on oyster larvae distribution and movement investigations	DMF-Resource Enhancement section	2007-09	PC	Ongoing FRG by Cudaback and Hasse/Eggleston (10/13/2008). Eggleston/Brandon Puckett - research project on connectivity between sanctuaries - spawning, are they sources or sinks, modeling. Eggleston/Haase - hydrodynamic circulation modeling in Pamlico Sound. Should be done by end of 2009 (7/27/2009).	256
DMF Resource Enhancement Section will initiate dissolved oxygen (DO) sampling in Pamlico Sound system to aid in determining suitable sites for oyster restoration.	DMF-Resource Enhancement section	2007-08	C	Coordinate with DWQ Rapid Response Program data collection (6/11/07). DMF working with UNC Charlotte (Amy Ringwood) who is deploying continuous monitoring devices at 3 locations in Neuse R (10/13/2008). Similar but different than #258. Ringwood completed last summer. Discussing doing additional sites. NCSU/DMF 2009 CRFL proposal to be submitted to increase DO and hydrographic monitoring (30-50 sites) in Pamlico Sound and assess larval distribution (7/27/2009).	271

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Support funding for establishment and operation of shellfish hatcheries.	DMF-Resource Enhancement section and Directors Office	Ongoing	PC	General Assembly approved funds for building the hatchery. DMF and UNC will use the funds to build the hatchery. Coastal Resources Advisory Council submitted a resolution supporting funding of hatcheries (9/15/2008). DMF working with UNC-W on hatchery construction plans (7/27/2009).	275
b) reestablishment of riparian wetlands and stream hydrology.					
Work with the Corps of Engineers and the Department of Transportation on innovative mitigation projects and an appropriate crediting system for them under the EEP. Such projects may include the protection and restoration of SAV and oyster beds, and the removal of certain dams and other aquatic organism barriers.	EEP	Ongoing	PC	<p>EEP is incorporating CHPP priorities into its coastal cataloging unit screening process to promote internally (via its Full-Delivery and Design-Bid-Build programs) and externally (via programs like CREP) the implementation of restoration projects in hydrologic units where coastal functions can be most improved. Work continues on a rapid assessment method for evaluating the condition of estuarine habitats in order to target subwatersheds for mitigation/restoration. The consultants developing rapid assessment method (ECU and NC Environmental Defense) are working through EEP's Non-Traditional Mitigation Steering Committee and two ad hoc advisory committees to seek consensus goals and a viable mitigation strategy. This strategy will be presented to the Program Assessment and Consistency Group (PACG—includes representatives of the USACE and NCDOT) for review and approval during the following year (9/16/2008). MFC approved a compensatory mitigation policy that shifts emphasis from simply no net loss (in-kind mitigation) to restoration of ecological functions within a watershed, and may incorporate restoration of other estuarine habitats that perform similar but effective functions (8/13/2009).</p> <p>EEP worked with multiple state and federal agencies to develop guidance that links project function with mitigation credit. EEP partnered with ECU and NC Environmental Defense to develop a non-traditional approach to mitigation in the White Oak basin. This Local Watershed Plan (LWP) is outlined here with links to the chapters of the project titled An Approach to Coordinate Compensatory Mitigation Requirements to Meet Goals of the Coastal Habitat Protection Plan. The final draft of Chapter 3 is currently under review.</p> <p>EEP investigated the mitigation potential of and presented findings of a non-traditional mitigation project in Manteo to its Program Assessment and Consistency Group Technical Committee (PACG-TC), the primary oversight committee of</p>	265

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
				EEP. The project was proposed by the NC Coastal Federation and consisted of an innovative saltmarsh basin to treat 41 acres of stormwater runoff. The project was ultimately funded externally, but the effort advanced the understanding of EEP's PACG-TC, potentially paving the way for future non-traditional coastal mitigation projects (8/14/2009).	
DENR review of state agency requests to the Natural Heritage Trust Fund will place a priority on those proposals that would further the protection and restoration of critical fisheries habitats.	DENR		DK	Coordinate with DENR Strategic Conservation Plan (10/20/2008).	217
Make protection and restoration of critical fisheries habitats a priority part of the One North Carolina Naturally initiative, such as developing conservation plans for the twenty coastal counties that identify potential conservation focus areas.	DENR	2007-09	DK	Coordinate with DENR Strategic Conservation Plan (10/20/2008)	218
The Department will assist coastal local governments in identifying navigation and stream restoration projects of particular importance to both fish and fisheries with grants from the State-Local projects program of the Division of Water Resources.	DENR, DWR	2007-09	DK	(10/20/2008)	219
Survey previously identified Albemarle Sound river herring spawning areas to estimate current condition and spawning function, and identify stream obstructions on river herring spawning streams.	DMF-Fisheries Management section	2007-08	PC	EC staff conducted surveys in Chowan R. system spring '08. Will continue '09 (10/13/2008). EC staff conducted surveys in the Chowan, Scuppernong, and Kendrick Creek (Mackey's) systems. Plan to do Perquimans and Little River next year (7/27/2009).	146
Include Strategic Habitat Areas as a priority area for CREP.	DSWC	2007-09	NA	The DSWC is working to add the Strategic Habitat Areas into the rankings for the Conservation Reserve Enhancement Program (7/27/2009).	149
DSWC encourage local SWCDs to include Strategic Habitat Areas and other CHPP priorities in local priority ranking system for the Agriculture Cost Share Program and the Community Conservation Assistance Program.	DSWC	2007-09	NA	Need strong emphasis on Community Conservation Assistance Program because it is the only retrofit program that can begin to reverse stormwater pollution. Waiting on completion of SHA designation (7/27/2009).	150
Establish and maintain an inventory of restoration projects describing the location,	APNEP, EEP, CWMT, DWQ	Ongoing	PC	APNEP is conducting an inventory in northeast region; DWQ 319 Program and CWMT also have inventories. EEP maintains a	163

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
amount, and type of habitat established in the coastal river basins.				database of restoration projects and will provide DMF with updates of projects located in coastal river basin SHAs. EEP tracks the number of stream, wetland (riparian, non-riparian, coastal marsh) and buffer projects. In the upcoming year, EEP will work with DMF to identify and track projects at the SHA scale. As of September 2008, EEP has over 150 restoration, enhancement and preservation projects within the drainages containing SHAs. These projects encompass more than 100 miles of stream, 22,000 acres of riparian and non-riparian wetland, 450 acres of coastal marsh, and 750 acres of buffer (9/16/2008). DWQ established a compensatory mitigation database in 2008 that will be maintained going forward (7/27/2009).	
The DFR will partner with the DOT and EEP to restore ~13,000 linear feet of stream and floodplain (Priority 2 Restoration) and create ~10-30 acres of wetlands in the Little River watershed (Neuse River Basin).	DFR	Partial completion by late 2009	PC	The DOT and DFR have agreed to easement compensation for loss of nursery tree production and a NCDOT engineering consultant is completing engineering and design plans for the stream and riparian corridor restoration; permitting of the project is pending. The EEP has secured lands north of the nursery property and is actively engaged with a landowner on the southern nursery property line to further expand the reach of the restoration project. They are currently pursuing funding for monitoring. EEP has been in negotiation with adjacent landowners to pursue the balance of the project (9/16/2008). The EEP was unable to complete negotiations with adjacent landowners. Therefore, the current stream restoration project is to be contained on DFR nursery property. (8/13/2009) EEP has negotiated an option agreement with the landowner for the southern parcel of the Little River restoration project in Wayne County. This project is adjacent to the DFR-NCDOT project at Claridge Nursery (8/14/2009).	170
The DFR will work with other DENR agencies to start pre-construction water quality and water quantity monitoring of 'The Canal'.	DFR	Start late 2008-early 2009	PC	This channelized stream runs through the Division's 700+ acre Claridge Nursery, located just west of the City of Goldsboro. The DFR has submitted documentation to DOT that will support a \$15,000 DOT stipend to fund startup of two WQ monitoring stations upstream and downstream of the project. Related to ActionID 170 (9/16/2008). DFR is working with the BAE department at NCSU to initiate pre-construction monitoring. Instrumentation is being installed at three locations along the canal. BAE is seeking grant funding to conduct the monitoring study (7/27/2009). Weirs, water flow, and water sampler installations were initiated June 2009 and will be complete September 2009. The NCDOT is supporting this monitoring project with a \$15,000 grant being processed through ITRE. Additional federal grant money is also being solicited to support and sustain project monitoring (8/13/2009).	266

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
The CRC may amend its administrative rule governing coastal wetlands (15A NCAC 7H 0.0205 Coastal Wetlands) to prevent alteration resulting in conversion of wetlands to uplands over time.	DCM		PC	The proposed changes include a list of standards under which limited alterations, or alterations by resource agencies or academic institutions, shall be exempt from permit requirements. The changes were approved for public hearing at the March 2008 meeting with an anticipated effective date of December 1, 2008 (4/23/2008). In 2009, the CRC implemented rule changes to restrict how and when marsh can be mowed to maintain the viability of the vegetation. The proposed changes include a list of standards under which limited alterations, or alterations by resource agencies or academic institutions, shall be exempt from permit requirements. A second public hearing was heard at the June 2009 meeting with an anticipated effective date of November 1, 2009 (7/27/2009).	292
c) and other habitat restoration.					
Study the feasibility and benefits of developing an SAV Restoration Program.	DWQ, EEP, DMF, WRC		PC	Needs further discussion among agencies regarding exotic SAV species. Note: Split into stepwise actions - much more needs doing (research, policy); could be a DENR issue (5/1/2007). DWQ coordinating with DOT to conduct a feasibility study regarding SAV restoration and mitigation in Currituck Sound. EEP has initiated internal research to determine the functional value of SAV restoration. EEP will investigate the DCM permitting requirements involving impacts to SAV. EEP will incorporate SAV restoration recommendations into the non-traditional mitigation strategy to be proposed to the PACG in the following year (9/16/2008). DWQ worked with DOT on a SAV and oyster habitat restoration and mitigation project in the Currituck Sound. Restoration work has been completed and monitoring continues to assess the success of the project (7/27/2009). EEP actively participated in the development of SAV restoration goals and guidance as a member of the NC SAV Mapping Partnership and its Restoration Subcommittee. EEP will continue to contribute to the partnership and to educate the PACG-TC regarding the potential of SAV restoration for mitigation (8/14/2009).	276
3.2 Prepare and implement a comprehensive beach and inlet management plan that addresses ecologically based guidelines, socio-economic concerns and fish habitat.					
Develop minimum criteria for monitoring beach nourishment projects.	DCM		NA	Part of the Beach and Inlet Management Plan (BIMP); no action at this time (9/15/2008).	65
Convene stakeholder group to identify data gaps, funding needs, and framework, and develop a timeline for beach and inlet management plan.	DCM		C	Part of the Beach and Inlet Management Plan. The Advisory Committee is comprised of appropriate state and federal agencies and members from the affected coastal communities. BIMP Advisory Committee meetings were held in November 2007 and September 2008 (9/15/2008).	66

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Complete beach and inlet management plan.	DCM, DWR	April 2009	PC	<p>DWR and DCM are collaborating and developing a comprehensive Beach and Inlet Management Plan (BIMP) for the State. Moffitt and Nichol were selected as the Contractor and began working in November 2007 to help with this effort. DCM and DWR have consulted with the Department and selected two different Committees to help with the initial plan development. The Advisory Committee(s) are comprised of an internal DENR working group made up of DENR agencies that will help with data gathering and coordination, and a BIMP advisory group made up of appropriate state and federal agencies and members from the affected coastal communities. Both these groups have met twice. The first meeting was in November 2007 when the work on the plan began, and in September 2008 to discuss the Draft Regional Management regions (9/15/2008). DENR conducted a second set of public meetings in March to update the public on the progress of the state's Beach and Inlet Management Plan. Regional presentations can be found here. A summary of public comments received is available from the DCM web site here.</p> <p>DENR previously held five public meetings regarding BIMP development in December 2008. These meetings included a preview of the draft BIMP management regions, shown below, along with a presentation on accomplishments to date. DENR is currently reviewing a final draft of the document and it is expected to be released in August 2009 (7/27/2009).</p>	295
DCM will serve as a clearinghouse for beach nourishment monitoring data.	DCM		PC	<p>This is part of DCM CZMA section 309 program for 2006-2010; portions of this dataset already have been compiled by state and federal agencies as well as academic institutions. DCM is currently merging these datasets. A database of historic, ongoing and future beach fill projects including beach nourishment, dredged material disposal, habitat enhancement, storm protection, and dune construction is also part of the BIMP database being gathered by Moffitt and Nichol. This information is being put into a database called E-Coastal. This database is also the one that the USACE is using for this effort as well (9/15/2008).</p>	222
3.3. Protect Submerged Aquatic Vegetation (SAV), shell bottom, and hard bottom areas from fishing gear effects through improved enforcement, establishment of protective buffers around habitats, and further restriction of mechanical shellfish harvesting.					

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Prepare maps identifying areas where allowed use of bottom disturbing fishing gear does or could overlap areas with sensitive estuarine habitat.	DMF-Fisheries Management, IT, and Habitat Protection sections	By December 2008	PC	Fisheries Management, IT, and Habitat sections. Bay scallop FMP (11/07) and oyster FMP (6/08) identified & resolved gear/habitat conflicts (10/3/2008). Maps in CHPP updated shell bottom chapter identify overlap of habitat and gear uses. MFC requested the impact of active gill net fishing in PNAs (dragging gear to scare fish into gill net) be studied, and if impact found, implement restrictions on such fishing operations in PNAs. FRG study is currently underway on this topic (7/27/2009).	223
3.4. Protect fish habitat by revising estuarine and public trust shoreline stabilization rules using best available information, considering estuarine erosion rates, and the development and promotion of incentives for use of alternatives to vertical shoreline stabilization measures.					
Refine rule 15A NCAC 07H .2700 GP for Marsh Sills.	DCM	Ongoing	PC	Included in ongoing effort of CRC Shoreline Stabilization Subcommittee (9/15/2008). In an effort to determine the impacts associated with the construction of marsh sills, the Division of Coastal Management will be partnering with UNC IMS and NOAA Center for Coastal Fisheries and Habitat Research to survey of approximately 30 sills that have been constructed along the coast. The survey will include sampling vegetation transects looking at stem density or % cover; surveying elevation profiles; analyze sediments for organic content and particle size; and sampling nekton and macrofauna. The survey will be incorporated as part of the CICEET sills project (7/27/2009).	74
Encourage alternatives to vertical shoreline stabilization methods through permit requirements and fees.	DCM	Ongoing	PC	The CRC has proposed rule changes to its GP for shoreline stabilization that reduce the distance waterward in which bulkheads encroach into public trust areas, by moving structure locations to approximate normal high water, and by promoting the benefits of rock structures through permit fee structure (9/15/2008).	229
Work with NOAA's Technical Advisory Committee members in their sponsored research program "Ecological Effects of Sea Level Rise" to develop information/tools to better forecast and manage landscape responses of critical natural resources relative to sea level rise.	DCM, DMF-Habitat Protection section	Ongoing	PC	DCM and DMF staff serving as management representatives; Presentations on SLR scheduled for July 2007 CRC (Projects Status Report). DCM participating in EPA Coastal Elevations and Sensitivity to SLR study – focuses on coastal areas of NY to NC (5/1/2007). DCM and DMF staff continue serving as management representatives; Most recent meeting held May 1 & 2 in Morehead City. All three projects are progressing at various stages -- however, it appears each will be extended beyond the original 3-year time period. No products have been produced to this point as the hydrodynamic and habitat response models continue to be developed. Next meeting is assumed to be this fall (9/15/2008). The DCM is working with DENR to co-host a sea level rise forum in January 2010 intended to display the best available science on current and project sea level rise for NC to help form the scientific basis for policy and management decisions. All scientists and	230

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
				researchers investigating sea level rise in the state will be invited to present their work. The target audience will include legislators, state and local policy makers and resource managers, elected officials, emergency managers, planners, infrastructure interests, conservations, private sector and other interested parties. The forum will focus on how much relative sea level rise should NC prepare for by 2100 (7/27/2009).	
Support/promote efforts to develop shoreline stabilization demonstration projects along non-ocean shorelines.	DCM	Ongoing	PC	DCM has identified possible funding sources and will be submitting applications for assistance July 2007 (5/1/2007). DCM NC NERR has received a CICEET grant to study marsh sills (9/15/2008). Marsh sills added as a cost-share practice for the Community Conservation Assistance Program in DSWC.	78
Use NOAA grant to delineate estuarine shorelines; begin by developing mapping methods. Note: Redundant with ActionID #122?	DCM	2007-09	C	The Center for Geographic and Information Systems (CGIA) has been contracted to determine the methodology for delineating the shoreline and structures for North Carolina. They have evaluated techniques such as LIDAR, Feature Analyst, and digitizing from the best available aerial photography. By June 2007, CGIA will have delivered a suggested methodology report as well as a completed shoreline and delineated structures for all public trust waters in Carteret, Craven and Pamlico Counties (6/15/2007). DCM has generated a draft methodology for digitizing a contiguous estuarine shoreline for North Carolina. Additionally, DCM has established an Estuarine Shoreline Working Group (ESWG) comprised of Federal, state and local government agencies, academics and various stakeholders. The ESWG will review DCM's shoreline delineation methodology and their comments will be incorporated into the document in an effort to enhance stakeholder use and acceptance of the finalized shoreline. The ESWG met in August 2008 (9/15/2008). DCM has generated a methodology for delineating the shoreline and structures for North Carolina. This methodology has been used, through a contract with ECU, to delineate the estuarine shoreline of Hyde and Beaufort counties. An additional contract has been established with ECU to delineate the shoreline for Dare, Pasquotank, Perquimans and Tyrrell County, with additional monies anticipated to be available in FY10 for 7 other counties within the Albemarle /Pamlico Sound region. In addition, DCM staff are delineating two counties (Pamlico and Craven) in an effort to bring the total shoreline project to 15 completed counties by December 2010 (7/27/2009).	80
Consider erosion rates as an additional factor in the siting of structures along estuarine and public trust shorelines.	DCM	2007-09	PC	Will be incorporated into DCM's draft methodology for digitizing a contiguous estuarine shoreline for North Carolina (ActionID 80) (9/15/2008).	267

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
3.5 Protect and enhance habitat for anadromous fishes by:					
a) incorporating the water quality needs of fish in surface water use planning and rule-making					
The Department, through the Division of Water Resources, will participate in a study of Kerr Lake with federal partners. The study will include the evaluation of modifying releases from the dam to benefit anadromous fish in the Roanoke River.	DWR	Complete study by 2012	DK	Conduct study under section 216 of the federal Clean Water Act; include other DENR agencies with appropriate knowledge and programs (10/20/2008).	262
b) eliminating obstructions to fish movements, such as dams, locks, and road fills					
The Department, through the Division of Water Resources and the Ecosystem Enhancement Program will focus on evaluation and possible removal of lock and dams 1, 2, and 3 on the Cape Fear River.	DWR	Ongoing	PC	Being pursued by CHPP Steering Committee and FMP implementation group (5/1/2007). These dams are currently being scrutinized by the legislature for removal or modification. Inasmuch as these dams can be incorporated into River Basin Restoration Priorities or Local Watershed Planning, EEP will document their potential functional uplift and pursue project development if mitigation needs justify the cost (9/16/2008).	160
The Department, through the Division of Water Resources and the Ecosystem Enhancement Program, will pursue dam removal projects where appropriate.	DWR, EEP, ACE	Ongoing	PC	EEP has engaged the ACE in determining the practicality of developing dam removal projects in the mitigation context. Specific dam removal projects are being incorporated into the recommendations of ongoing Local Watershed Plans. In any case, dam removal projects must yield affordable mitigation credits in cataloging units with mitigation needs in order for EEP to pursue them (5/1/2007). EEP promoted the study of dam removal projects for mitigation by presenting a program titled Incorporating Dam Removal Projects into EEP Local Watershed Plans at the 2008 Stream Restoration in the Southeast conference in Asheville. The second of two case studies presented used the June 2008 dam removal guidance produced by the interagency team led by the Raleigh office of the US Army Corp of Engineers to demonstrate potential mitigation credit produced by removing Cape Fear River Locks and Dams 1 & 2 (8/14/2009).	231
Modify dam removal policy with ACE to provide for accomplishing action #231.	ACE	2007-09	DK	(10/20/2008)	268

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Survey coastal river basins systematically to locate obstructions to fish migration and prioritize sites for removal/restoration.	DMF-Fisheries Management and Habitat Protection sections		PC	SHA Region 1 analysis identified all potential obstructions in Albemarle region. During spawning surveys in '08, information on type/size of obstructions recorded. Plan to survey thoroughly in '08-'09 (10/13/2008). Surveyed the primary culvert (lowest downstream) in the Chowan (Meherrin River) tributaries. Plan to survey Scuppernong next year. Collect information on location, culvert type, material, dimensions, water depth, distance between water level and top/bottom of culvert, water level, and water body width (7/27/2009).	162
Obtain funding to restore designated streams and associated wetlands designated as anadromous fish spawning areas in the Albemarle Sound area as implementation steps for the River Herring Fishery Management Plan.	DMF-Fisheries Management section, APNEP, EEP, WRC		PC	APNEP received money that was used to purchase conservation land and buy wq monitoring devices to be used at spawning locations (10/13/2008). Deployed 9 continuous monitoring devices purchased and in Chowan, Roanoke, Perquimans, Scuppernong, Pasquotank, Alligator; collecting data every 2 hr on temp, DO, salinity, pH, conductivity (7/27/2009). APNEP stated that water quality monitoring project was complete (8/7/09).	164
4.1 Reduce point source pollution from wastewater by:					
b) providing incentives for upgrading all types of wastewater treatment systems.					
Evaluate 15A NCAC 2H .0400 and 2B .0500 regulations for opportunities to provide incentives for upgrading all types of wastewater treatment systems and make recommendation to EMC.	DWQ		PC	DWQ is reviewing these regulations and hopes to go before the EMC with draft revisions during 2010 (7/27/2009).	87
4.2. Adopt or modify rules or statutes to prohibit ocean wastewater discharges.					
Evaluate 15A NCAC 2H .0400 rules as they apply to ocean wastewater treatment systems and make recommendation to the EMC regarding modifications.	DWQ		PC	Reviewed existing rules restricting ocean discharges and is asking DENR legal counsel to review findings and comment on the true extent of those restrictions (7/27/2009).	88
4.3. Prohibit new or expanded stormwater outfalls to coastal beaches and to coastal shellfishing waters (EMC surface water classifications SA and SB) except during times of emergency when public safety and health are threatened, and continue to phase-out existing outfalls by implementing alternative stormwater management strategies.					
Evaluate impact of deep-water ocean outfall for stormwater management.	DWQ	2007-09	PC	Water Resources has commissioned a special study through Moffet & Nichol. The report should be available by summer 2010 (7/27/2009).	89
Work with DENR to prioritize stormwater outfall mapping efforts on areas near critical fisheries habitats and implement DOT's Stormwater Pilot Project on new and innovative technologies to clean up discharges from DOT outfalls and associated outlets.	DENR, DWR, DOT		DK	Money with DENR; "Smart sponge" experiment underway in Dare County. Note: Consider UNC-Coastal Studies Institute as another partner in research (10/20/2008).	232

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Develop a plan to phase out municipal stormwater outfalls to sounds.	DWQ	2007-09	C	All estuarine outfalls have been identified (10/20/2008)	233
Actively seek research on innovative technology to remove stormwater outfalls with 319 grant funding.	DWQ		NA	As of July 2009, no 319 funding has been used to remove stormwater outfalls (7/27/2009).	234
Enhance DWQ coastal/state stormwater database by mid-2007	DWQ	2007-09	PC	Awaiting report (10/20/2008). This activity will require funding to update location and other information in the DWQ BIMS database (7/27/2009).	94
4.4. Enhance coordination with, and financial/technical support for, local government actions to better manage stormwater and wastewater.					
Provide Phase II stormwater educational & technical assistance to local governments through the DENR Runoff Pollution Campaign and through partnerships with the Division of Community Assistance and UNC Institute of Government.	DENR, DWQ		PC	DWQ has conducted workshops at the following locations: Raleigh: 4/10/07 Burgaw: 4/16/07 Greenville: 5/22/07 Raleigh: 5/24/07 (7/27/2009)	235
Implement Community Conservation Assistance Program with emphasis on CHPP stormwater priorities in coastal counties.	DSWC	Start in 2007-08	C	DSWC program patterned after Agriculture cost share program. Need strong emphasis on Community Assistance Program because it is the only retrofit program than can begin to reverse stormwater pollution (5/2007). Program being implemented statewide, but no additional funding from legislature in 2008 (10/14/2008). Modest General Assembly appropriation began in 2008 (7/27/2009).	151
4.5. Improve land-based strategies throughout the river basins to reduce non-point pollution and minimize cumulative losses to wetlands and streams through voluntary actions, assistance, and incentives, including:					
a) improved methods to reduce sediment pollution from construction sites, agriculture, and forestry;					
The DFR will use additional 319 Grant (NPS Pollution Prevention) funds in 2007 to purchase five additional sets of steel bridge mats for the Division's Bridge Mat Loan & Education Project.	DFR	2008	C	Some of these new mats will be located at coastal plain district offices and made available to local loggers. Using bridge mats for stream or ditch crossings is a preferred BMP with respect to protecting water quality and improving forest operation efficiency and costs (5/1/2007). The NCDFR purchased five additional sets of steel bridge mats and located two sets in the Neuse and Tar-Pamlico & Roanoke River Basins (9/4/2008). A 6-year status report was compiled describing the use of bridge mats in NC for forestry. The report is online and can be accessed at: www.dfr.nc.gov . Printed report copies will be available by October 2009 (8/13/2009).	171
Enhance DCM education efforts such as the N.C. NERR Septic Systems Workshops. Note: Redundant with education actions?	DCM, NERR	Ongoing	PC	DCM NC NERR Coastal Training Program conducted three On-site Wastewater Treatment and Disposal Systems Basics workshops. DCM NC NERR Coastal Training Program conducted two Online demonstrations of the Habitat Priority Planner, a geospatial planning	240

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
				<p>tool that uses data to help people visualize ecological scenarios and make decisions about resource management issues. Demonstration conducted by the NOAA Coastal Services Center and this program was offered as a regional collaboration between the Southeast Regional NERRs. DCM NC NERR Coastal Training Program hosted An introductory, two-day course that actively engaged participants in learning about alternatives to how and where growth will occur in their communities. It provided them with the background, examples, and strategies to support alternative development efforts in coastal communities. Conducted by the NOAA Coastal Services Center (6/15/2008). 'DCM NC NERR Coastal Training Program conducted • the following workshops - May 7, Wilmington: Coastal Growth Strategies (Leadership Training for Elected Officials) – A course designed to help local governing boards effectively integrate community water quality protection goals with growth and redevelopment. This one-day program aims to improve participants' understanding of land use and water quality linkages, the benefits of stakeholder and public involvement in environmental decision-making, and ways to integrate environmental protection and restoration into public policies and programs. May 21, Beaufort: Getting to Know Wetlands: Value, Regulations & Conservation - Workshop topics included the value and function of wetlands, wetland regulations, and wetland restoration case studies. The workshop also included a presentation on the NC Wetland Assessment Method (NCWAM) and a field trip to a coastal wetland for experience in identifying wetland plant species and delineating wetland boundaries. September 23, Beaufort: Getting to Know Wetlands: Value, Regulations & Conservation - Workshop topics included the value and function of wetlands, wetland regulations, and wetland restoration case studies. The workshop also included a presentation on the NC Wetland Assessment Method (NCWAM) and a field trip to a coastal wetland for experience in identifying wetland plant species and delineating wetland boundaries.</p> <p>Worshops are also planned on water reuse (i.e. rain water harvesting, gray water use), stormwater workshops for realtors, a invasive red fox symposium, a microbial pollution workshop, and a grant writing workshop depending upon budget constraints (7/27/2009).</p>	

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
The DFR will complete, publish, and distribute statewide 10,000 copies of the NC Forestry BMP Quick-Reference Field Guide in 2007-08.	DFR	2007-08	C	This 140+ page color-illustrated handbook will complement the Division's 2006 release of the NC Forestry BMP Manual To Protect Water Quality. The Field Guide is a hands-on document targeted at reaching loggers including their heavy equipment operators and laborers (5/1/2007). The NCDFR completed this project and printed a total 20,000 copies (9/4/2008).	172
The DFR will seek funding to purchase 'rehab' fire plows for five of its coastal-based district offices.	DFR	2007-08	PC	NCDFR submitted a grant application to NCDMF for funding of four rehab plows and personnel project time oriented towards this project and other Coastal Plain WQ Projects (9/4/2008).	173
Obtain USDA approval to expand CREP to include the Roanoke, Pasquotank, White Oak, Lumber, and Cape Fear River basins.	DSWC		C	CREP expansion approved by USDA in June 2008. Now available in the following riverbasins: Yadkin-PeeDee, Lumber, Cape Fear, Neuse, White Oak, Tar-Pamlico, Pasquotank, Chowan, and Roanoke (7/27/2009).	180
Implement enhanced marketing strategy for CREP to include education on Neuse and Tar-Pamlico buffer rules.	DSWC	Ongoing	C	Included information in Neuse/Tar-Pamlico buffer rules and strategies to encourage proactive buffer installation in CREP training events in March 2008 (7/27/2009).	181
b) increased on-site filtration of stormwater;					
The DFR will begin long-term water quality and water quantity monitoring of Beddingfield Creek during 2007 in anticipation of implementing a 3,000+ acre watershed restoration effort in the Neuse River Basin.	DFR, EEP	2007-09	PC	The Division is using 319 Grant funds to startup this watershed monitoring. The restoration will be part of the 10-year Urban Forest Watershed Protection and Education Initiative (UFWPEI). The UFWPEI seeks to improve the water quality in urbanizing watersheds by integrating managed forests with planned and existing development and protecting and enhancing sensitive areas in the watershed. Phase 1 of the project has already generated > \$4.0 million in partnership funds, primarily use for land acquisition within the watershed (10/20/2008). EEP incorporated the Beddingfield Creek hydrologic unit into its Wake-Johnston Local Watershed Plan study area and has initiated water quality monitoring there. The watershed was originally proposed for long-term monitoring in the Urban Forest Watershed Protection and Education Initiative (UFWPEI) (8/14/2009).	174
c) documentation and monitoring of small but cumulative impacts to wetlands and streams from approved, un-mitigated activities;					
Coordinate with Wetland Functional Assessment Team to determine wetland status and trends.	DCM, DMF, DWQ, WRC		NA	Proposed for adoption by letter 21 May 2007. No action since then (9/15/2008).	241
d) incentives for low-impact development (LID);					

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Implement five on-the-ground projects to increase understanding of the effectiveness of low impact development in coastal and piedmont North Carolina in meeting water quality goals, develop guidance for design considerations, and provide educational opportunities.	DWQ	Dec 2010	C	Four LID demonstration projects funded with Section 319 funds in Neuse, Tar-Pamlico, and Cape Fear basins (10/20/2008). Four on-the-ground LID demonstration projects in the Neuse and Cape Fear basins, and three LID education/guidance projects have been completed using 319 funding. Six additional projects are ongoing; five on-the-ground LID demonstration projects in the Neuse, Cape Fear, Tar-Pamlico, and Pasquotank basins and one educational project (7/27/2009).	108
g) other					
The DFR will seek funding to establish two Water Quality Forester (WQF) positions in coastal-plain Districts 6 (Fayetteville) and 13 (Fairfield).	DFR	2007-09	NA	No progress to report. These positions will likely be included in NCDFR's 2009-2010 expansion budget for DENR review (9/4/2008).	178
The DFR will implement 'Tailgate BMPs for Loggers' in 2007-08, a customer education outreach project designed to take the classroom into the woods.	DFR	2007-09	PC	The NCDFR purchased and field-tested one TV/DVD monitor and is now ready to move forward with the remaining equipment purchases (9/4/2008).	175
The DFR will produce a 4th BMP video on forest operations. The video, entitled 'BMPs for Site Rehabilitation', will cover appropriate practices to use in stabilizing and closing out a harvested timber tract.	DFR	2007-08	NA	Project delayed to meet revised delivery schedule requested by NCFA (9/4/2008).	176
The DFR will produce a 2nd edition of the 'Riparian & Wetland Tree Planting Pocket Guide for North Carolina'.	DFR	2007-08	C	The Division produced 5,000 copies of this 77-page booklet in September 2006. The 1st edition is projected to be out-of-print by mid to late 2007 (5/1/2007). The 2nd Edition is complete and at the printers. Ten thousand copies will be printed (9/4/2008).	177
Through the Division of Land Resources (DLR), work with the Sedimentation Control Commission (SCC) to include CHPP presentations on the Commission agenda and to include information on CHPP actions in SCC and DLR publications.	DLR		DK	(10/20/2008)	243
4.6. Improve land-based strategies throughout the river basins to reduce non-point pollution and minimize cumulative losses to wetlands and streams through rule making, including:					
a) increased use of effective vegetated buffers,					

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
EMC solicit public comment on a proposal to extend the vegetative setback for new development within the 20 CAMA Counties from 30 feet to 50 feet.	DWQ	2007-08	PC	The EMC has initiated rulemaking action to revise DWQ's Coastal Stormwater rules. EMC is soliciting comment on the proposal (10/14/2008). The new rules were signed into law (Session Law 2008-211) and were effective October 1, 2008 (7/27/2009).	280
b) reduction of impervious surfaces where feasible and reduction of the level of impervious surface allowable in the absence of engineered stormwater controls,					
Require the use of engineered stormwater controls for all new development within 1/2 mile and draining to Shellfishing Waters that exceeds 12% impervious surfaces and new development that is not within 1/2 mile and draining to shellfishing waters would be required to install engineered stormwater controls is the impervious surface density exceeds 24%.	DWQ	2007-08	PC	The EMC has initiated rulemaking action to revise DWQ's Coastal Stormwater Rules. The current threshold for engineered stormwater controls is 25% within 1/2 mile of shellfishing waters and 30% beyond 1/2 mile (6/12/2007). EMC adopted revised coastal stormwater rules in the 20 coastal counties. The new rules were signed into law and will be effective October 1, 2008 (7/27/2009).	281
c) expansion of CAMA Areas of Environmental Concern (AECs) upstream and landward, and					
Expand CAMA Areas of Environmental Concern (AECs) upstream and landward within CAMA counties.	DCM	2007-09	DK	The Division is reconsidering this action pending completion of the estuarine shoreline mapping project (7/27/2009).	114
e) Other					
Evaluate stormwater pollution control mechanisms and cumulative wetland and stream losses in the Cape Fear and White Oak River basins to determine if additional regulatory controls are needed and present findings to the EMC.	DWQ		PC	Study is underway (10/20/2008). Pete Caldwell/DWQ: No one in DWQ seems to know anything about this action. Can someone point us to a contact (7/27/2009)?	244
Develop a mitigation policy for intermittent streams.	DWQ, EEP		PC	In development (10/20/2008). This will be public noticed by the end of August (7/27/2009).	245
EMC working on mandatory application of Phase II stormwater program to all 20 coastal counties. EMC approved initial concept at January 2007 meeting.	DWQ		C	This was implemented in Session Law 2008-211 (Coastal Stormwater Rules) and became effective 10/1/2008 (7/27/2009).	288
4.7. Develop and implement a comprehensive coastal marina and dock management plan and policy for the protection of shellfish harvest waters and fish habitat.					

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Inventory docks and piers in the 20 coastal counties. Note: Redundant with ActionID #80?	DCM	Ongoing	PC	DCM has generated a draft methodology for delineating the shoreline and structures for North Carolina. This methodology was presented to an Estuarine Shoreline Working Group in August 2008 for review. Once the final methodology is accepted DCM will begin digitizing efforts (9/15/2008). This methodology has been used, through a contract with ECU, to delineate the estuarine shoreline of Hyde and Beaufort counties. An additional contract has been established with ECU to delineate the shoreline for Dare, Pasquotank, Perquimans and Tyrrell County, with additional monies anticipated to be available in FY10 for 7 other counties within the Albemarle /Pamlico Sound region. In addition, DCM staff are delineating two counties (Pamlico and Craven) in an effort to bring the total shoreline project to 15 completed counties by December 2010 (7/27/2009).	122
Incorporate EMC's prohibition of marinas in ORWs into CRC rules.	DCM	2008-09	DK	(10/20/2008)	247
Evaluate marina development standards (rule NCAC 7H .0208(b)(5)). CRC consider rule changes to implement in dock and pier management.	DCM	Ongoing	PC	CRC has proposed changes to docks and piers rules which give property owners flexibility in docking facilities (8 sq. ft./linear ft. shoreline) and includes minimum water depth (18 in.) for docking facilities under the General Permit if located in PNA, SAV or Shellbottom (9/15/2008). CRC has adopted changes to docks and piers rules which give property owners flexibility in docking facilities (8 sq. ft./linear ft. shoreline) and includes minimum water depth (18 in.) for docking facilities under the General Permit if located in PNA, SAV or Shellbottom. The rule went into effect July 1, 2009 (7/27/2009).	248
Improve wastewater/stormwater management at coastal marinas	DWQ, DCM	Ongoing	PC	Evaluating existing and potential water/stormwater management at coastal marinas (10/20/2008). DWQ has undertaken outreach programs to educate marina owners on this issue (7/27/2009).	250
4.8 Reduce non-point source pollution from large-scale animal operations by the following actions:					
a) support early implementation of environmentally superior alternatives to the current lagoon and sprayfield systems as identified under the Smithfield Agreement and continue the moratorium on new/expanded swine operations until alternative waste treatment technology is implemented;					
The Department, through the Division of Pollution Prevention and Environmental Assistance, will provide contract and independent swine farms with the technical assistance and training needed to implement effective Environmental Management Systems.	DPPEA		DK	(10/20/2008)	251

CHPP IMPLEMENTATION DATABASE (7-27-09 UPDATE)

Action	Lead	Target year	Status ¹	Status narrative	ActionID
Support early implementation of environmentally superior alternatives to waste lagoon and spray field systems. Encourage commissions to express their support for early implementation.	DENR, DWQ	Ongoing	PC	\$2 million appropriated in FY2007-08. Lagoon Conversion Program selected 3 projects in Sampson County for assistance. Considering funding for one additional project from two applications on hand (10/14/2008). Additional \$1.1 million available for this effort through the Cooperative Conservation Partnership Initiative - funded by NRCS through DSWC (7/27/2009).	158
b) seek additional funding to phase-out large-scale animal operations in sensitive areas and relocate operations from sensitive areas;					
Seek funding for fourth phase of voluntary program to buy out active swine operations in the 100-year floodplain.	DSWC		C	DSWC seeking funding from CWMTF (5/1/2007). Grant for 4th phase awarded. Have solicited applications from interested participants. Now collecting field data for ranking applications (10/14/2008). DSWC awarded \$3 million funding from CWMTF for 4th phase awarded. Have selected finalists for participation. Now conducting appraisals for finalists (7/27/2009).	183

Highlighted areas indicate part of one previous multifaceted action.